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Chemical Action of Sugar.

M. Dabrunfault's examination of the changes suffered by cane sugar, in the fermenting process, previous to the formation of alcohol and carbonic acid, has led him to the conclusion that the altered cane sugar—or its analagous grape sugar or fruit syrup—is not a simple variety of sugar; only a certain quantity of it becomes glucose by crystallization, the residue polarizing to the left with the same power that the separated grape sugar polarizes to the right. In the vinous fermentation of the altered sugar, that which disappears in the first part of the process is optically neutral, while the sugar which disappears last polarizes strongly to the left. No one sugar is exclusively decomposed before another in fermented mixed sugars. The sugar produced from starch by the action of malt is not identical with grape sugar; for the former is less soluble in alcohol, less liable to change by ebullition, or the alkalies, and its polarizing power is three times that of the latter.

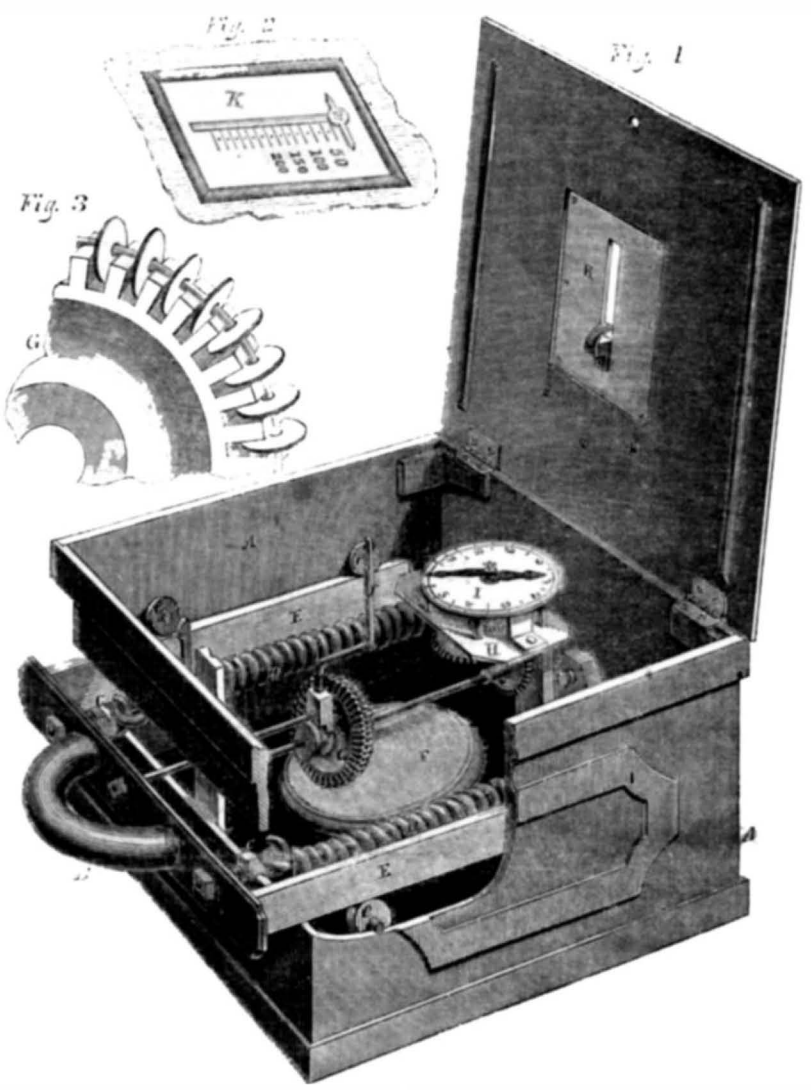
Wood Gas.

Dr. Pettenkofer, of Munich, Bavaria, has been quite successful in his experiments for obtaining gas from wood, being the discoverer of a method of manufacturing this gas, by which a flame of great clearness and strong illuminating power is produced. After the charring of the wood in the retort, the evolved gas is exposed to an extended surface of heated iron, and thence passed through the tar receiver, the condenser, and the lime for purification, into the gasometer, the whole process requiring only about one hour. The gas is not injured by remaining any length of time in the gasometer. According to Briesach, 4½ cubic feet of gas gives per hour the light equal to 15½ wax candles—five to a pound; the same amount of coal gas gives the light of 11 to 13 wax candles. Experiments have also proved that one cwt. of dry fir wood is equal to 759 cubic feet of pure gas, 20 lbs. of charcoal, and 5 to 7 lbs. of tar; the time required for distillation is 65 minutes.

Indigo.

The war in India will cripple our supplies of this article, and as the demand for it is very great, we shall have to look about for some new place whence to obtain it. As it is a native of the southern part of our country, the planters should be quickly stirring to bring its cultivation back again to its native land. It will grow best on recently cleared lands, and requires a very moist soil; it must also be protected from high winds, and in time of draught should be well irrigated. Great Britain has been too smart for us, in making it grow best in her own possessions, and we have been compelled to import it from that country. Let us take our own again, and, by attention to its cultivation, keep it as one of the staples of our commerce.

LEONARD'S DYNAMOMETER.



This is an instrument for ascertaining and registering the draft of plows, mowers, reapers, wagons, carriages, &c., and, as its name signifies, it is a measurer of motive power.

At the present time, when every State and County are holding their agricultural fairs, we would call their special attention to this instrument, which would be so valuable an aid to them in deciding the relative merits of the implements, machines and cattle subjected to their judgment for approval or the reverse. It consists in a small cast iron box, A, having a handle firmly fixed to the back, by which it is attached to the object whose draft is to be ascertained, and another handle in front, to which the horse, or other motive power, is attached, as seen at B. This handle is fastened to a plate having two hooks, C, on it, with which the springs, D, are connected, the other ends of them being firmly fixed to the back plate of the box. The front handle and plate, carrying the springs, which are regulated to the mechanism of the machine, are supplied with two guides, E, running between friction rollers, *e*, thus keeping the whole steady during the strain; these are, so to speak, the power receivers.

Now to describe the measurers, which peculiarly characterize this dynamometer from others. F is a leather disk mounted in brass, which is rotated by a strong marine clock underneath—not seen in our engraving. G is a traveling wheel, which moves up and down the disk, and receives motion from it; it works in a slotted mandrel, so that it can move backwards and forward, and still, when turned by the rotating disk, communicate motion through the train of gearing, H, to the indicating hand, I, and face. Fig. 3 shows an enlarged view of the periphery of this traveling wheel, which is furnished with a number of little wheels, set at right angles to itself, so that it can move with ease along the disk, and ensure a perfect motion. Fig. 2 is an indicator, which is placed outside the box on the lid, and is operated by the projecting wire, J,—K, Fig. 1, showing the back of it. This shows the greatest strain that has been on the machine during the testing.

It is evident that if the traveling wheel, G, be exactly in the center of the disk, F, it will remain at rest, but the further it is pulled from the center of the periphery the quicker will it move, and by the gearing, H, give a faster motion to the hands, I, they being so graduated that with 100 lbs. strain on the springs, the traveling wheel will be pulled out so far as to cause them to move one space of the dial, say from 0 to 1.

The operation is as follows:—The handle at the back of the box is attached to the plow carriage, or other article to be drawn, and the horse, or other motor, hooked on to the handle, B. The clock is then wound up through a hole in the base of the box, and the time noted; the horse is allowed to pull for one minute, and then stopped. The outside register, K, will give the greatest strain that has been exerted on the springs, and the indicating hands will tell the draft of the plow. If, for example, the large hand has moved from 0 to 1, then 100 lbs. strain has been exerted; if from 0 to 2, then 200 lbs., and so on. If, however, an average is wanted, you pull for about a quarter of an hour, and by comparing the time with the number noted, you obtain the average strain required to work the plow, or other machine.

The different modifications which this machine is capable of, will allow it to be used to test the power of steam engines, and mill gearing, and to register the speed of vessels at sea. It is also applied as a water and gas meter.

This is the invention of Mr. W. B. Leonard, Corresponding Secretary of the American Institute, at whose Fair in the Crystal Palace it is on exhibition. Patented December 19th, 1854.

Any further information or particulars may be had of John Sherry, manufacturer, Sag Harbor, N. Y., or Leonard & Clark, 11 Platt street, New York.

The British East India Company.

According to recent and authentic documents, this company now rules, directly or indirectly, an empire of 500,000 square miles, with a population of more than 160,000,000. The nominal money capital of the company is set down at $80,000,000, and its annual revenues are estimated at $135,000,000. The salaries of the principal officers are: Governor General, $125,000—perquisities, $200,000; Members of Governor's Council, $48,000; Bishops, $12,000 to $15,000; Law Judges, (30 in number,) $15,000; Collectors and Magistrates, (45 in number,) from $6,000 to $19,000. In striking contrast with these great salaries is the pay of the native soldiers, being eleven cents per day.

The standing military force of this powerful company is about three hundred thousand men, European and natives—the former the flower of the British army. The department of the topographical engineers is remarkable for its skill and efficiency, and has done much for the material development of the country. Railroads completed and in construction, now span the whole extent of the empire, from Carnatic to the Himalayas, opening a brilliant prospect for the agriculturist at no distant future. There are also in operation at the present time more than four thousand miles of the magnetic telegraph, with which connection will soon be made along the southern coast of Arabia, and through Egypt, submarining the Red Sea, with the Mediterranean lines, thus communicating directly with the whole of the western world. There is special interest attached to this company, at this moment, growing out of the terrible rebellion now fearfully progressing in India, for upon the company devolves the momentous duty of stopping the progress of the insurrection, and the heavy responsibility of its consequences.

Portfolio for Periodicals.

W. Root, of Marietta, Ga., has sent us an ingenious little model of an apparatus for holding periodicals, &c. It is very simple and can be made by any of our subscribers for holding the loose numbers of the SCIENTIFIC AMERICAN, or any other journal which they think worth preserving. It is simply a cardboard back, or an old book back of sufficient size will answer the purpose, and in the top and bottom of the back is placed a bit of wire so bent as to form a loop inside the cover; around each of these loops, from one to the other, a number of strings are tied, and behind these strings each number of the journal is slipped, so that they are held as firmly or nearly so as a bound book.

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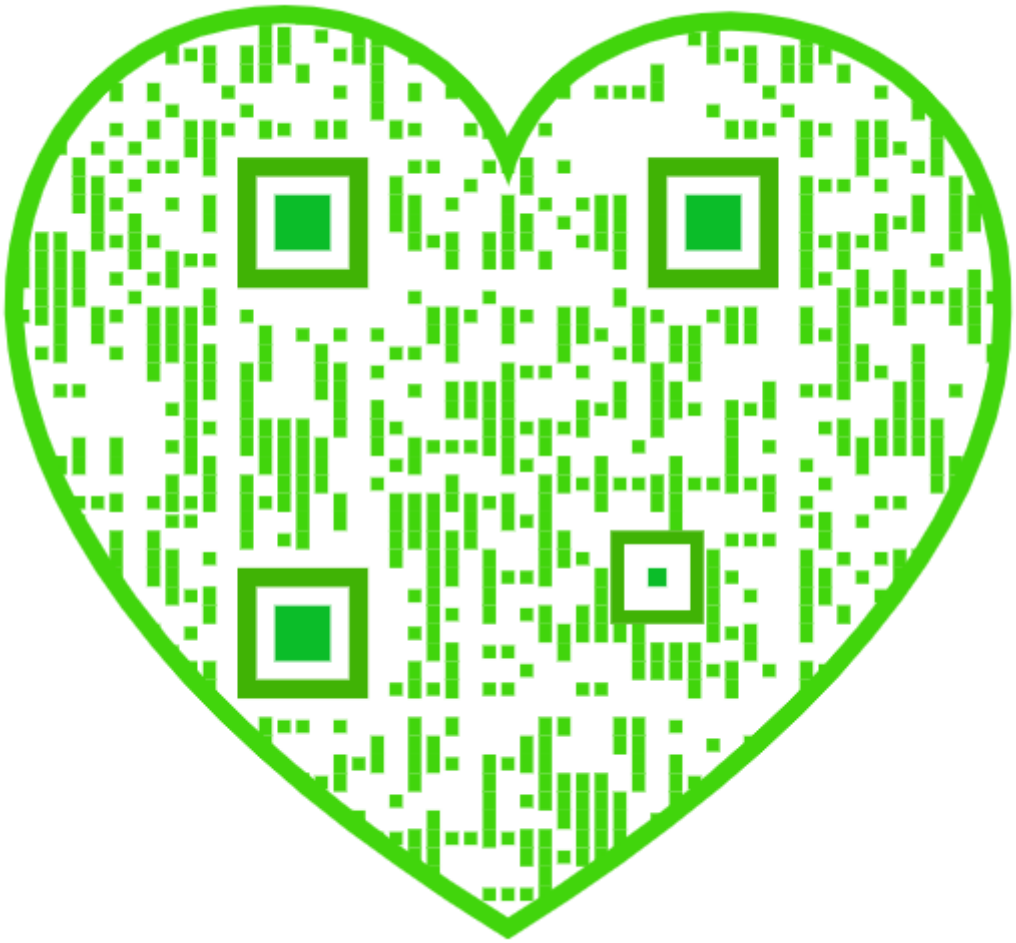

Issued from the United States Patent Office

FOR THE WEEK ENDING OCTOBER 6, 1857.

[*Reported officially for the Scientific American.*]

MACHINES FOR FORMING AND HARDENING HAT BODIES—A. C. Arnold, of Norwalk, Conn. : I do not claim the picking machine and feeding appendages or chamber, nor the exhaust box, nor fan, nor any of the movements for driving either, or revolving the cone, nor the method of forming a hat by their use.

But I claim the cam shaft, I, worm wheel, L, cam, J, levers, U U′, step, e, cylinders, b, and collar, a, or their mechanical equivalents, arranged and operated substantially as described and for the purposes set forth.

I further claim the shaft, R, lever, V, pulleys, S and T, the inverted cone or disk, m, brackets, p p, shaft, n, pulley, o, sleeve, r, shaft, q, lever, x, lifting rod, y, or their mechanical equivalents, arranged and operated substantially as described and for the purposes specified.

[A notice of this will be found on another page.]

GRAIN DRILLS—Henry Beitzell, of Centerville, Ind.: I claim the combination of the adjustable cutter, B, with the drill tooth, A C, and the draft bar, D, in the manner and form as described and represented.

BRICK PRESS—E. H. Bellows, of Worcester, Mass. : I am aware that plungers have been so arranged as to operate simultaneously at opposite sides of a brick for the purpose of compressing the same. This device is common to many brick presses, and I therefore do not claim broadly such device.

But I claim the combination of the plungers, C C, intermittently moving apron, G, and frame, N, with the case or box, F, the whole being constructed and arranged so as to operate conjointly as and for the purpose set forth.

[This is described on another page.]

STEAM GENERATORS—Julien F. Belleville, of Nancy, France : I claim the general disposition and arrangement of the steam generator, and the parts connected therewith, consisting of tubes in which water or other liquids are converted into steam, substantially as specified.

POWER LOOMS FOR WEAVING WIRE CLOTH—E. B. Bigelow, of Boston, Mass. : I claim, first, The mode of constructing and operating the shuttle and combining it with the selvage-forming apparatus, whereby the filling wire is straightened, the certain action of the shuttle secured, and the width and selvages of the wire cloth preserved, substantially as specified.

I also claim the mode of arranging the parts which connect the selvage-forming apparatus with the loom shipper, whereby the loom is thrown out of gear when the filling wire fails, as set forth.

I also claim the mode of giving a double action to the lathe, substantially in the manner and for the purpose specified.

And I finally claim the mode of constructing and arranging the parts of the warp wire stop motion, and combining it with the loom shipper for stopping the loom when a warp wire breaks, substantially as specified.

STOVE COVER STANDS—Hiram Carsley, of Lynn, Mass.: I claim the improved stove cover screen, composed of a series of shelves, each provided with the space, a, and arranged in combination with the relatively enlarged and flanged base, b, substantially in the manner and for the purposes set forth.

MACHINE FOR PACKING WOOL—Chas. Carlisle, of Woodstock, Vt. : I claim, first, The shaft, G, weighted on its bearings and so adjusted as to rise or recede from the movable table, B, while the fleece is being wound around it, substantially in the manner and for the purpose specified.

Second, The movable table, C, for the purpose of conveying the fleece to and under the shaft, G, while in the process of being wound up.

Third, The oblique anti-friction rollers, F F, for the purpose specified.

Fourth, The folding leaves, B B, as detached from the movable table, C and yet so adjusted as to fold the fleece over and upon the table, and thus to straighten and compress it, preparatory to its being wound up.

Fifth, The method of adjusting the binding twine, c c, so as to bring it under the fleece in position for a neat and expeditious binding of the same.

CURTAIN ROLLERS—D. N. B. Coffin, Jr., of Newton (Center), Mass. : I claim the grooved roll made elastic substantially as described, and so clamping the curtain and its strip with or without the caps.

CORN SHELLER—A. M. Cook, of Milford, Mass. : I claim the perforated revolving disk, K, in combination with the radial arms, I, g, and blocks, M, constructed and operating in the manner and for the purpose substantially as set forth.

MODE OF ATTACHING SCYTHES TO SNATHS—Wm. T. Clement, of Shelburne Falls, Mass. : I claim the combination of the adjustable plate, D, loop, C, and screw, c, when arranged substantially as described for the purpose specified.

[These scythes are attached by means of an adjustable plate to the snath, and a loop which prevents the scythe being set at varying angles with the snath.]

MANUFACTURE OF METALLIC SQUARES—Samuel Darling, of Bangor, Me.: I claim a square when constructed as set forth and described.

SAW FILING MACHINE—Harley Stone and J. S. Cole, of Blackstone, Mass. : We do not claim broadly the use of a gage to prevent the file cutting too low, or the use of a movable carriage, as machines have been made with these features, but were constructed upon different principles from ours, and cannot accomplish the same results.

But we claim the file holder constructed and described in combination with the stop gage and feeding mechanism, arranged and operating substantially in the manner and for the purposes set forth.

SOD CUTTERS—Nelson Newman, of Springfield, Ill. : I claim the vertical cutters, d d, and the horizontal cutters, i i, in combination with the rotating cutters, D, attached to the wheels, B B′, the whole being arranged to operate conjointly as shown for the purpose set forth.

[A full description of this appears on page 43.]

REAPING AND MOWING MACHINES—M. E. Ellsworth, of Hudson, O. : I claim the seat or stand, B, consisting of the seat board, M, spring, N, standard, G, joint, I I, footboard and rests, E F, when constructed and arranged in relation to and used in combination with Manny's combined reaper and mower, as set forth.

CULTIVATORS—Wm. J. Forshee, of Indianapolis, Ind.: I claim the combination and arrangement of the bar, B, the wheel, C, the bar, H, and levers, G, G, G, and G, when constructed and operated substantially as set forth.

CORN HUSKERS—A. M. George, of Nashua, N. H. : I claim the combination of the revolving cutter wheel, E, with the traveling endless apron, B, slotted arm, g, and the vibrating husking board, L, arranged and operating substantially in the manner and for the purpose described.

MACHINE FOR PACKING WOOL—Albert Dorr, of Orleans, Mich. : I do not claim the movable or folding leaves, h, i, j, and K, as my invention; but I do claim, first, The press follower, H, as in combination with said leaves, or any other box or apparatus for folding or holding wool and being the bottom of the same, and so constructed as to be raised up for the purpose of pressing the wool, and may be operated by rack, W, pinions, v and Q, spur wheel, T, and crank, O, as herein set forth, or in any other convenient way.

Second, I claim the rack, W, pinions, v and Q, spur wheel, T, ratchet, S, ratchet wheel, R, the spring, r, crank, O, with the shafts, P and U, the rack rod, G, as described, for the purpose of operating the follower, H, as set forth.

Third, I claim the crank, X, shaft, Y, pinion, Z, segment, a, and spring, p, substantially in the manner and for the purposes set forth.

Fourth, I claim the treadle, b, arm, d, and the rods, e, m and n, or their equivalents, for the purposes set forth.

Fifth, I claim the slide twine holders, o, o, o, and bails, l l, as described and for the purposes set forth.

CORN HUSKER—H. P. Gerrish, of Sandoval, Ill. : I claim the feeding cylinder, D, or its equivalent, made with a series of spring troughs, E E′, E″ E‴, for holding the blades of corn successively to the action of the knife, and husking cylinder, as set forth.

I also claim causing said cylinder to stop at each time the ear is brought against or to the action of the husking cylinder, in manner and for the purpose as described.

SEED PLANTERS—W. Y. Gill, of Henderson, Ky. : I claim the lever, F, attached to the bar, D, and having the slides, e, connected to its end, by means of the screws, f, the lever being operated by means of the spring, I, and the spring projection, p, on the wheel, B′, the parts being arranged substantially as described for the purpose of distributing or discharging the seed from the hoppers, and regulating or graduating the amount at each discharge, as desired.

[By means of this swinging frame and rollers, the furrows can be made any depth and the seed delivered at any rate or distance, the whole being under the command of the operator.]

SEED PLANTERS—A. M. Gould and Albert Flanders, of Cambria, N. Y. : We do not claim adjustable hoppers irrespective of the arrangement shown, for adjustable hoppers have been previously used.

But we claim the described arrangement of shaft, H, and hoppers, I I and L with shaft, E, and rollers, D D.

[An engraving and description of this device will be found on page 44.]

PLOWS—Manasseh Grover, of Clyde, O. : I claim the combination of hinged forked bar, B, and beam, A, with the segmental bar, D, and the adjustable lever, E, with its roller, J, the whole arranged and operating substantially as and for the purpose set forth.

HILL-SIDE PLOWS—A. J. Hardin, of Shelby, N. C. ; I claim the arrangement of spring, G, with relation to handle, H, and beam, A, in the manner and for the purpose described.

CURRY COMBS—N. C. Harris and Alonzo Butler, of Poultney, Vt. : We claim the employment of a metallic plate, A, to embrace the sheet or plate in which the teeth of the card are inserted in the manner described, for the purpose of adding strength and finish, and for securing the handle thereto.

BRONZING LIQUIDS—Henry Hoffman, of New York City : I do not claim to be the first inventor of bronzing liquids, for I am aware that a compound for this purpose was patented in England, Jan. 13, 1844, by H. Bessemer; that compound, however, is expensive in its nature and difficult in its manufacture, having no ingredients analogous to mine save the powdered metal; Bessemer's compound required the employment of a size in order to secure its proper application, but mine requires nothing of the kind; Bessemer's fluid also requires a long time for drying, but my fluid becomes dry within a few minutes after its application.

I claim the fluid or liquid bronze composition described for the purposes set forth.

[The description of this invention is on page 43.]

RAKES—A. A. and Andrew Hotchkiss, of Sharon Valley, Conn. : We are aware that cast-iron rakes have been made before, and that a ferrule has been braced from the rake head by braces which were riveted to both the ferrule and rake-head; we therefore claim neither of these things.

But we claim the rake-head, A, with its teeth, a, ferrule, C, and braces, b, in one piece, and casting the ferrule, D, with its braces, in another piece, and uniting the two pieces together, substantially in the manner set forth, by which means we produce a new, cheap, and serviceable article of manufacture not heretofore known in the trade.

GUARD FINGER FOR REAPING MACHINES—Charles Howell, of Cleveland, O. : I claim constructing the guard fingers of reaping and mowing machines of sheet metal, in the manner substantially as described and shown in Figs. 2, 3, 4 and 5.

MACHINE FOR SHUCKING AND SHELLING CORN—Sanford Kingsbery, of Carrolton, Ga. : I claim the combination of the toothed face or faces of the wheel, A, with the tapering concave or concaves, B, when the respective series of actuating teeth on the face or faces of the wheel, A, are proportioned and distributed, substantially as set forth, and for the purposes specified.

GANG PLOWS—S. L. Kingston and David Gore, of Plainview, Ill. : We are aware that series of shares have been arranged in gang plows, so that they could be adjusted vertically or laterally, and we therefore do not claim a series of shares thus arranged, irrespective of the means employed for operating them. Neither do we claim a swivel wheel for guiding and turning the machine, irrespective of the manner in which it is arranged and applied to the machine. Nor do we claim a rotary coulter simply.

But we claim, first, Attaching the bar, F, to the bars, A, by means of the lever, D, and arm, G, and having the ends of the bars, K, connected by chairs, m, to arms, n, connected to a bar, L, to which a lever, L′, is attached, the lever, O, being attached to one end of the bar, A, and to the rod, q, as shown, and the screw rod, V, attached to the bar, B, and passing through the bar, g, whereby the shares may be adjusted vertically and laterally, and also raised temporarily when necessary, as shown and described.

Second, We claim a mold board, constructed of conical wire rollers, X X′, arranged as shown, or in an equivalent way for the purpose of raising and turning the sward as set forth.

[We have given the details of this improvement on page 43.]

SEED PLANTERS—C. O. Luce, of Brandon, Vt. : I am aware that rotating cylinders provided with cells or chambers have been previously used, and form well-known devices for distributing seed; but I am not aware that parts have been arranged as described, whereby the capacity of the seed cells or chambers can be varied with such facility. I therefore do not claim a rotating cylinder or shaft provided with seed cells or chambers.

But I claim the rotating shafts, B, provided with the radial plates, a, and the adjustable or sliding cylinders, C, in combination with the elastic or spring cut-offs, d, the above parts being combined and arranged specifically as and for the purpose set forth.

[This is an improvement on a former patent of June 11th, 1856, and consists chiefly in the construction of the regulating and delivery device, which is composed of revolving wheels placed horizontally, and by the centrifugal force of which a regular and measured quantity is delivered.]

JOINERS' BENCH—J. W. Mahan, of Lexington, Ill. : I would state that I do not claim as my invention, that is, as new, the entire carpenters' and cabinetmakers' assistant work-bench that is illustrated and described by my drawings and specification, for part of it was patented by me March 25 and September 16, 1856.

But I claim the cabinetmakers' and carpenters' assistant work bench, constructed in any manner substantially the same as shown by my specification and drawings.

SEEDING MACHINES—Daniel and A. S. Markham, of Monmouth, Ill. : We claim the inclined screen with the overhanging lip upon the forward side for protecting the grain from the wind, arranged as set forth.

MELTING AND REFINING IRON—G. P. Miller and Hugh Dougherty, of Lancaster, Pa. : We do not claim having discovered the coking of anthracite coal, nor the admixture of such coke with other coals or coke.

But we claim adjusting the proper proportions of these fuels for use in melting and refining iron, substantially as set forth, by which we are enabled to use more scrap iron and inferior pig iron than is now known to be used, and to temper the metal in the manner described with economy of fuels and of time.

LOCOMOTIVE COW CATCHERS—James Mitchell, of Osceola, Iowa : I claim the combination cow-catcher, composed of clearer, A, and grating, C, so constructed that the latter will be brought into action by the lifting of the clearer, and all parts be made to resume their original position by the forward movement of the engine, substantially as set forth.

SHOWER BATHS—Wm. Miller, of Waltham, Mass. : I claim combining with a shower bath, a brush, and mechanism to impart to the said brush movements whereby a person while in the bath may have his back or other part of his body brushed or cleaned, substantially as specified.

SEED PLANTERS—Hosea Willard, of Vergennes, Vt.: I do not claim separately a perforated reciprocating slide, i, for distributing seed, for they are in common use.

Neither do I claim a rotating cylinder for distributing seed, when separately considered.

But I claim the rotating cylinder, D, provided with the taper opening, f, and the adjustable plates, g, in combination with the inclined spout, E, tube, F, and perforated reciprocating slide, i, when arranged as shown for the purpose specified.

[This seed planter is described with an engraving on another page.]

OIL PRESSING MACHINERY—William Wilber, of New York City : I claim the arrangement described of a system of chambers and tubes, in connection with a fan or other proper blowing or exhausting apparatus, for the purpose of circulating hot air through various parts of the machine, and applying it directly to the seeds and pulp, substantially in the manner specified.

SEWING MACHINES—Willford H. Nettleton and Chas. Raymond, of Bristol, Conn. : We claim the spring bed plate, q, in combination with the pressure clamp o, and inclined spring fingers, r, to feed the cloth, substantially as specified.

ROCK-CUTTING AND DRILLING MACHINE—William Plumer, of Boston, Mass. : I claim first, Feeding the cutter laterally in a direction at right angles to the cut, or nearly so, whether the cutting tool be situated horizontally, vertically, or at any angle, by the devices described, or their equivalents, so arranged that the cutter or drill can be turned at right angles to the straight track of the machine, and also the requisite feeding motion be obtained as set forth.

Second, I claim the slotted arms, c′ d′ and e′ f′, so arranged and constructed as to permit the whole cutting apparatus to be turned at right angles to the cut, and to communicate when fastened together, the lateral feeding motion to the frame, r r.

Third, I also claim the arrangement of devices described, whereby I am enabled to feed the cutter working vertically in a circular direction, and set the cutter at any desired distance from the center upon which the machine turns, by which blocks or pillars of any desired diameter can be cut out as set forth.

EXTENSION ELEVATORS—Pierce Porter, of Hooksett, N. H. : I do not claim any of the above described devices separately.

But I claim the employment of a truss frame extending in a vertical direction, composed of the strips, A A, &c., the cross ties, R R, &c., and the axes, B B′ B″ and B‴, the axis, B‴, being confined in the vertical posts H and H′, and the axis, B‴, free to move vertically in the slots, L and L′, in combination with the pulley, F, and the windlass, E, or their mechanical equivalents, the whole constructed and operating substantially in the manner and for the purpose set forth and described.

SAWING SHINGLES—Jesse Gilman, of Nashua, N. H. : I claim attaching the adjustable guide, F, to the movable arm, E, attached by a joint to the carriage, C, and operated by the movement of the carriage through the medium of the arm, G, lever, J, and groove or guide, H, substantially as and for the purpose set forth.

[This is described on another page.]

PLOWS—Thomas Sharp, of Nashville, Tenn. : I do not claim a hollow or tubular iron beam, for they have been previously used, but, so far as I am aware, for lightness and strength only, without reference to any particular mode of attaching the beam to the plow with a view to the adjustment of the line of draught with the share.

I claim attaching the beam, F, to the plow substantially as shown, or in any equivalent way which will admit of the turning of the beam for the purpose of adjusting the draught hook or eye, b, both laterally and vertically, as set forth.

[By means of this plow the furrows may be controlled in depth and width with greater nicety than the ones in common use. The invention consists in arranging the line of draft of the plow differently in relation to the shears.]

HOT AIR REGISTERS—Sylvester J. Sherman, of New York City : I claim interposing between the top plate of hot air registers, and the spring bar, to which the fans are attached, either directly or by means of a connecting rod, a slide plate, to which the end of the spring bar nearest to said top plate on one side, and the knob or handle on the other side, are permanently fixed, substantially as described.

SPRING BED BOTTOMS—Henry J. Smith, of Washington, D. C. : I claim sustaining the slats forming the spring bottom at and near one end, leaving the remainder of the length of the slats unsupported, by which means they form a series of elastic springs, for the support of the bed.

FOUNTAIN PEN—A. F. Warren, of Brooklyn, N. Y.: I do not claim the employment or use of a valve b, placed at the discharge end or orifice of a tube or fountain, A, to regulate the flow or supply of ink to the pen, for that has been previously used.

But I claim first, The supplementary valve or cut-off, d, used in connection with the valve, b, both valves being within the tube or fountain, A, and placed on the same rod, c, substantially as and for the purpose set forth.

I do not claim, broadly, the plates, f g, for they have been previously used.

But I claim attaching said plates, f g, to the holder D, by means of the pivot, h, for the purpose specified.

[The description will be found on another page.]

LUBRICATING CARRIAGE AXLES—Albert A. Vedder, of Lysander, N. Y. : I claim the manner of lubricating axles by means of a reservoir screw and suitable conduit, as described, or any other manner substantially the same, and which will produce the intended effect.

CORN SHELLER—Ancil Stickney, of Concord, N. H. : I claim the combination of the rocking piece, C, with the flanged piece B, and wheel A, the whole being arranged substantially as described, and for the purpose specified.

CORN HUSKERS—W. H. Smith, of Newport, R. I. : I am aware that machines have been devised in which one toothed endless apron and brush cylinder were used, and a patent was formerly granted to me for an arrangement of such devices in connection with a toothed disk.

I am also aware that circular saws have been used for sawing off the butts from the cars; I do not claim, therefore, separately, the employment or use of saws.

Neither do I claim the employment or use of endless aprons, irrespective of the arrangement shown.

But I claim the combination of the two toothed aprons M M, provided with pressure P, with the brush cylinders, O O′, arranged and operating conjointly as shown, for the purpose specified.

[Full particulars of this invention are in another portion of this number.]

SEWING MACHINES—E. H. Smith, of New York City : I claim a cylindrical annular shuttle constructed as described, in combination with the driver, for holding it place and driving it around.

And in combination therewith I claim imparting to the needle and its thread a constant upward movement, while the shuttle passes through the loop, so as to lift the shuttle completely off its bearings, and thus avoid all friction of a sliding shuttle, and the use of oil thereon.

I also claim, in combination with the above continuous movement, the two thread guides, as arranged and made to operate together with respect to the endless movement and shot of the shuttle, essentially in the manner set forth and represented, for the purpose of causing a positive withdrawal of the loop from the shuttle at the moment the latter has passed through it.

I further claim the employment of the smaller or auxiliary foot to hold the cloth to the feeding teeth in their forward movement, and to release the pressure therefrom when they return, substantially as set forth.

Finally, I claim the use of a series of laterally reciprocating teeth, to carry the cloth along in their forward movement, in combination with a series of vertically acting teeth, to assist in holding the cloth, and counteract the retrograde tendency in the return of the feed, when such teeth act independently of the foot to which they are attached.

MACHINE FOR PICKING COTTON IN THE FIELD—Jos. W. Thorn, of Courtland, Ala. : I claim the method described of delivering the cotton within the receptacle, G, by means of the teeth, d, turning on shafts, b, in combination with the cam rods, K, and toes, h, for returning said teeth to the position for picking the cotton, substantially in the manner set forth.

SEED SOWING MACHINES—William C. Squier, of Rockford, Ill. : I claim having the bed piece, E E′, which carry the hopper, F F, capable of turning on pivots a a, of the circular bed plate, C, and the short axles, H H, on pivots, b b, of said bed pieces, E E′, and the whole retained in proper condition when expanded, by means of braces, J J, stop pins, d d and e e, and coupling, g g, on end of axles, substantially as and for the purposes set forth,

[For information about this machine we refer to page 43.]

COAL STOVES—William H. Stinson, of Baltimore, Md. : I make no claim, broadly, to the heating of rooms by means of currents of air introduced from without and circulating in chambers or passages around a stove situated within the fireplace.

Neither do I claim the introduction of cold air from without into a fire chamber, and thence into the room in a heated state, as these devices are well known in the Franklin stove, and the stove of Feinour.

Neither do I claim the construction of a stove with a vacant space around the stove, closed in front, except the space between the cylinder and sides, the heated air being forced out between the cylinder and sides, as in the stove of Latrobe, as these devices fail of effecting the purposes which are perfectly fulfilled by my invention, viz. : the control of the source from whence the cold air is derived, the dividing and passing it over a great amount of heating surface, and by the arrangement of the air passages, aid its flow into the apartment, in such volume and temperature as, while it is sufficient to warm the room, is not so heated as to vitiate its quality, while the radiated heat is thrown to the front of the stove, rendering it warm to the feet.

Neither do I claim, broadly, and as separate devices, the various parts as described, and forming my stove, as these parts have been before and variously applied.

But I claim the arrangement of the air passage E, the division plate or partition, H, and the inclined flue, D, with its corresponding air passage, F, made, combined, and operating substantially as described.

WIND WHEEL—William Zimmerman, of Quincy, Ill.: I claim a wind wheel with radial sails arranged upon an upright shaft, when provided with the regulating apparatus first described, or its equivalent.

I claim the arrangement of the partitions and inclined guides which conduct the wind received at the front of the wheel-house on to the four quarters, or the several parts of the wind wheel, substantially as described.

I claim a vacuum escape cap above or around a wind wheel, for the purpose set forth, substantially as described, whether made adjustable, so as to enlarge the vacuum area or otherwise.

I claim the revolving wind receivers or catchers with their conducting flues, for the purpose of catching the wind and supplying it to the wheel substantially as described.

BALANCING THRESHING CYLINDERS—Damon R. Averill, (assignor to himself, James F. Davis, and Henry Twitchell,) of Pulaski, N. Y. : The particular improvement which constitutes my said invention, and which I claim, is

Hanging the movable weights or sliders in circular slots, concentric with the axis of the cylinder, by which means the centrifugal force of the cylinder is prevented from throwing them out of position, as set forth.

SEWING MACHINES—William C. Watson, (assignor to himself, George H. Wooster and Ira W. Gregory,) of New York City : I claim the specified device set forth, being the vibrating hook operating to catch, spread and carry the loop upon the stationary hook, where, by the action of the bolts, the said loop will be held securely open in the path of the needle, when the feed is given so as to insure certainty of action without extending the loop more than is requisite for the passage of the needle through it.

CUTTING METAL CAPS FOR NAIL HEADS—Zachariah Walsh, (assignor to Cornelius Walsh,) of Newark, N. J.: I do not claim separately, the dies for cutting and forming the covers or caps for the nail heads, for there is nothing essentially new in their construction, nor in their mode of operations.

But I claim first, Feeding or presenting the plate, N′, to the dies, substantially as shown, or in any equivalent way, so that said plate will be moved vertically between its longitudinal or lateral movements towards the dies, for the purpose specified, and this I claim whether used with the dies, arranged as shown, or otherwise.

Second, The bed, U, slide, G′, and griping levers, J′, operated as shown, and constituting the feeding device, in combination with the dies, b P c d, arranged and operated substantially as described.

[Another notice of this invention appears in this paper.]

WOOD BORING MACHINES—Lafayette Stevens, (assignor to William L. Gibson,) of Elmira, N. Y.: I claim employing the elastic force of air when introduced as a blast through one or more tubes or jets, immediately at, or closely following, the bit or cutters as described, or by any analogous means of application having substantially the same effect, for the purpose of removing the chips and dust.

RE-ISSUE.

MANUFACTURE OF SULPHURIC ACID—Alfred Monnier, of Camden, N. J. Patented August 7, 1857 : I claim the process of preparing native metallic sulphurets by pulverizing them, and mixing them with the substances above described, in order to extract all, or nearly all,

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the sulphur from them, for the purpose of making sulphuric acid.

DESIGNS.

CLOCK CASES—Pietro Cinquinni, (assignor to Bradley, Hubbard & Bradley,) of West Meriden, Conn.

[This is a pretty and easy design, consisting of a man laden with toys, the clock case being the body of the figure, and the face in the center. It is termed the "Santa Claus."]

COAL SCUTTLES—Gootfried Thurlemeyer, of New York City.

[This design is elegant and chaste, and consists of shells and curves, which harmonize well together.]

ADDITIONAL IMPROVEMENTS.

LOCOMOTIVE BOILERS—James E. McConnell, of Wolverton, Eng. Patented June 2, 1857. Ante-dated Dec. 2, 1856: I claim the fire-box extended into the barrel of the boiler, in combination with the transverse fire brick bridges, and with water bridges or chambers fitted with tubular stays, through which a fresh supply of air is admitted to the combustion chamber, or extended portion of the fire-box, for the purpose of assisting the combustion, and of preventing the formation of smoke, substantially as set forth.

LOOMS—Daniel W. Snell & Stephen S. Bartlett, of Woonsocket, R. I. Patented January 13, 1857. Ante-dated September 1, 1856: We claim as additional to our re-issued patent dated September 1, 1856, first, The application of the worm gear, F, in combination with the pinion shaft, E, and pinion, C, as and for the purpose represented.

Second, The spring, H, acting as shown, for the purpose of giving a yielding motion to the beam at the change of harnesses and beating up of the reed.

NOTE.—In the above list of patents issued last week, we notice the names of no less than NINETEEN inventors whose cases were prepared at this office.

Descriptive Index to Chemical Patents.

An index to the chemical patents issued by the United States Patent Office during the year 1854. Prepared for the SCIENTIFIC AMERICAN by Dr. D. Breed, solicitor of patents, Washington, D. C. Continued from index to 1855, 1856, and 1857, published in SCIENTIFIC AMERICAN.

Archil—Extract of; mixed with calcined magnesia, (instead of ammonia,) and gum water, for dyeing: Jonas Eberhardt, June 27.

Cement—Ashes of cotton seed, or of other oleaginous vegetable substance, as ingredient, mixed with rosin, or oil, and earthy matters: W. H. Poindexter, administrator of J. R. Remington, July 4.

Dyeing—Exhaustion and pressure of vat, in connection with moving the fabric: Charles T. Appleton, May 30.

Fat—Purified by water at high temperatures and pressure: R. A. Tilghman, October 3. England, January 9, 1854.

Fire—Extinguishing of, by mixture of sulphur nitre, sawdust, and tow, set on fire to absorb oxygen: Ralph Bulkley, March 21.

Flax—Boiled in alkali, washed, then steeped in bleaching solution, to which is added borax, sea salt, saltpeter, glauber salts, epsom salts, sal ammoniac, or other salt to separate the fibers: Jonathan Knowles, February 14.

Flax—Bleaching of, facilitated by agitation and squeezing between rollers when immersed in bleaching solution: J. Augustus Roth, April 18.

Gas—From wood; heating gas after it leaves retort to convert tar into gas: William P. McConnell, September 26.

Gutta Percha—Treatment with a small amount of sulphur, (1 oz. sulphur to 1 lb. of gutta percha,) and heating to 285° Fah. to expel volatile ingredients before vulcanizing: John Murphy, May 30.

Hemp—Use of salt or other saline in steeping hemp to remove the gum. 2, Immersion of hemp in boiling tar before making into twine: Lewis C. Sugett, May 22.

Hemp, Straw, etc.—Treated with steam or hot water, to remove extractive and coloring matters: William Watt, November 21.

India Rubber—Hollow articles of; fitted to mold by use of water, which, during vulcanization, is converted in part into steam: E. D. S. Goodyear, March 28.

India Rubber—Curing of vulcanized by heating in water to 300° Fah.: L. Otto P. Meyer, February 28.

India Rubber—Treated with hydrogen gas during the heating process of vulcanization, in order to remove excess of sulphur: Rider & Murphy, November 7.

India Rubber—Vulcanized with selenium: E. E. Marcy, November 7.

India Rubber—Molded and then covered with tin-foil, to preserve form during curing process: L. Otto P. Meyer, April 4.

India Rubber—Sheets of covered with paper, and confined between plates of metal during vulcanization: Charles Goodyear, April 4.

India Rubber—Use of steam jacket both for the mold and for the die, for re-molding worn out rubber: Daniel Hayward, August 29.

Iron—Making direct from ore; Use of blasts forced on the deoxydizing ore on the hearth, to aid in decarbonizing: James Renton, October 24.

Iron—Enameling of; treating surface with mucilage, and dusting over with frit: Thomin & Stumer, October 17.

Lime—Neutral sulphite, for neutralizing chlorine in bleaching: Professor E. N. Horsford, October 30.

Marble—Fusible artificial; mixture of asphaltum, clay, calcareous loam, and silex: Henry P. Gengembre, July 11.

Marbling Stone—Use of gum kauri with drying oil in bath to prevent colors from commingling: Hiram Tucker, February 21. England, September 23, 1853.

Marbleizing—Use of a syringe to lay down veins or designs of marble, either on cement or on the mold: William Bonney, August 8.

Oil—From rosin; mixed with clay (instead of alkaline earths,) and then distilled, to avoid obtaining pitch with oil: Halvor Halvorson, May 2.

Oil—Purified by agitation with alcohol: Thomas Drayton, July 4.

Oil—Kerocene; distilled from petroleum at 800° Fah., then redistilled at a low temperature, and treated with sulphuric acid, peroxyd of manganese, and lime, etc., three products obtained: Abraham Gesner, June 27.

Paint—Use of dried albumen to harden and fix paints by coagulation. Two patents: Gabriel Blondon, Sune 20.

Paint—Steaming iron ores in manufacture of pigments: Joseph H. Davis, August 8.

Paper—Pulp from wood; use of alkali and chlorine, or its compound, to disintegrate wood: Watt & Burgess, July 18. England, August 10,1853.

Telegraph—Insulation by composition of gum shellac, rosin, tar, oils, bitumen, (asphaltum, or mineral pitch,) and india rubber: Thomas, Earl of Dundonald, June 13. England, October 6, 1852.

Tallow—Hardening by nitrate of ammonia, or niter and sulphate of ammonia, for making candles: Charles Schinz, June 13.

Varnish—Crude turpentine, spirits turpentine, and sulphate of zinc: Jonathan Burrage, March 14.

Zinc White—Jet of air for cooling, conveying and oxydizing vapors. Two apparatuses: Richard Jones, March 28.

Salt Works—Mother liquor of; treatment of to obtain epsom salts, iodine, bromine, and common salt: Edward Stieren, December 12.

Soap—Mixture of spirits turpentine, spirits camphor, alcohol, nitric ether, aqua ammonia, to be used with soap suds: C. W. Crozier, July 11.

Soap—Use of bran dissolved in caustic alkali, as ingredient of: T. Chalkley Taylor, June 13. England, September 17, 1853.

Soap—Potatoes with skins treated with alkali as ingredient of: T. Chalkley Taylor, June 13.

Stereotype—Composition of gutta percha and either pulverized graphite, soapstone, plaster, chloride of lime, or peroxyd of manganese: Julius Herriet, October 24.

Sulphuric Acid—Gaseous: purified from hypo-nitrous acid by sulphurous acid in the leaden chambers. Two apparatuses: D. E. Contaret, June 13. England, December 16, 1853.

The Compressed Air Bath.

We have received a long letter from Dr. Taylor in answer to the one from Dr. Gleiwitz which appeared in our columns of Sept 19th; and were we to publish it, a long discussion would be originated quite foreign to the object of our paper. We have neither space nor inclination to open our columns to a medical argument on a subject which is of little interest to our readers. But as the letter contains answers to certain objections advanced by Dr. Gleiwitz, we feel in justice bound to publish them: "First, this bath is not intended to *force* air into the lungs, for the cure of consumption, but simply to supply the requisite amount that the system requires, and gives the blood a better chance of aeration. 2d, It is not easy to breath at great altitudes, as any one who has ascended a mountain or been up in a balloon knows very well; testimony enough to fill a volume might be adduced on this subject. 3d, Carbon is not an essential component of the air, it is purely accidental, and only one part of it occurs in ten thousand of air. 4th, There is no doubt that the laborers about salt works are remarkabably exempt from pulmonic diseases, so are all persons who live an entirely out-door life, if in a good climate; and lastly the compressed air bath does not claim to be a specific for anything, it is no Holloway or Morrison, but only a valuable aid in medical hygiene." This is the essence of Dr. Taylor's reply, with all personalities and unmeaning explanations suppressed; and we hope that this will be satisfacory to both parties.

Chinaware.

This elegant, useful and important kind of pottery was, as its name implies, first manufactured in China, where it attained the highest perfection. Travelers often took specimens to Europe, which excited the ambition of the potters, and for a long time they tried in vain to imitate it, for not having the exact kind of clay, their experiments were fruitless. In the commencement of the last century, however, a clay was discovered in Germany by a gentleman who proposed to use it for hair powder, but a druggist's apprentice by the name of Bottcher seeing it, concluded he could put it to a better use, and from it he made first porcelain, or Dresden china, which has since become so celebrated. A clay was again accidentally discovered in France, and the manufactory of Sevres was the result; and lastly, a far superior variety of china clay, or, as it is called from the Chinese word, *kaolin*, was discovered in Cornwall, and the English china began to far surpass all the others in richness of tints and clearness of structure until very recently. With clay in abundance, and all the requisites at command, we were content to import all our chinaware from England, and this to the value of about two million dollars a year. Several potteries for making china had been established in this country, and for some unaccountable reason, failed. But now there are many successful works in operation, and one of them at Gloucester, N. J., is on an extensive scale. They obtain their clay from Delaware, and it answers the purpose well.

It is, perhaps, unfashionable to drink tea or coffee out of American china cups,; neither might we think as much of a porcelain figure, however artistic, made at home, as we should of one which had crossed the Atlantic. One thing is certain, and that is, if we only make the progress in this department of manufacture which we have in others, we shall not import chinaware from Europe, but export it there, to adorn the tables or drawing-rooms of the great and rich. American china will then become as celebrated as that of Dresden, Sevres, or Worcester.

A Machine for Forming and Hardening Hat Bodies.

This improvement consists in a new arrangement of the parts of the ordinary hat cone, and adding to the picking machine and exhaust box in common use, a revolving adjustable heart-shaped cam and sundry incidental parts, by means of which the cone receives a graduated vertical alternating motion during the formation of the bat, for the hat, accelerated or retarded by the shape of the cam, or the application of a hand lever, so as to increase or diminish the quantity of fur deposited upon particular portions of the surface of the cone. By means of another cone, centrifugal motion, and steam, the whole is hardened to the proper degree. It is the invention of A. C. Arnold, of Norwalk, Conn.

The claims of the various improvements noticed below may be found by reference to the List of Claims on another page.

Caps or Covers for Nails.

T. Walsh, of Newark, N. J., has recently invented a device whereby he saves a great quantity of metal in the cutting by dies of nail covers. In the ordinary method a number are cut out of a strip of metal, and the metal is thrown away. He, however, employs strips nearly twice the usual width, and cuts out two rows, each alternating with the other, so that comparatively little metal is wasted. The invention consists in the feeding arrangement, which is very ingenious.

Gang Plow.

This improvement professes to surmount the difficulties that usually attend the use of gang plows, by allowing them a vertical and lateral adjustment, and also that they will ride over any obstruction independent of each other. They are also provided with rotating coulters and a swivel wheel, by which they may be guided. It is the invention of S. L. Kingston and Daniel Gore, of Plain View, Ill.

Saw Mill.

The object of an invention or improvement in saw mills, invented by Jesse Gilman, of Nashua, N. H., is to make suitable provision to prevent the stuff, when it is sawed from the bolt, from binding or wedging against the saw. This is attained by having the guide attached to a movable arm so arranged as to keep the stuff from the saw after being cut.

Fountain Pen.

The great objection of fountain pens generally, is that they do not deliver the ink regularly, and that they are very difficult to clean. This pen, the invention of A. F. Warren, of Brooklyn, N. Y., by having its valves so connected that they work simultaneously, prevents the former evil, and the general arrangement of its parts renders it easy of being cleansed.

Seeding Machine.

This improvement, the invention of Wm. C. Squier, renders the seeding machine capable of being expanded when required for use, and folded and contracted when not required, or while being transported from the field to the house, or *vice versa*. Thus all inconvenience in passing through narrow gates or passages, and economizing room in the farm yard or implement house after the planting season is over.

Fluid Bronze.

The ordinary bronzes are of some trouble to apply, but the inventor (H. Hoffman) has succeeded, by a combination of gilding powder, any of the common bronze powders, and collodion, in making an article which can be applied to wood, stone, or metal with ease and certainty. It may be had of H. Bridgeman & Co., publishers of the *Druggists' Circular*, 36 Beekman street, New York.

Novel Plow.

This plow first cuts the sod clear away from the subsoil, and then cuts it up into strips, thus presenting a rich and mellow subsoil to the seed. This is done by means of vertical and horizontal cutters and cutting wheels all arranged to work conjointly. It is the invention of N. Newman, of Springfield, Ill.

Corn Husking Machine.

A new device for this purpose has been patented by W. H. Smith, of Newport, R. I., whereby the corn may be husked direct from the stalk. Endless bands take the stalk up to saws which cut off the stalk, the corn is then stripped by brushes, and other bands take it away.

Polishing Bricks.

Where a neat facing another lings or warehouses is required, this invention will be useful. The bricks are polished by being allowed to become partially dry and then subjected to further pressure. It is the invention of E. H. Bellows, of Worcester, Mass.

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New Inventions.

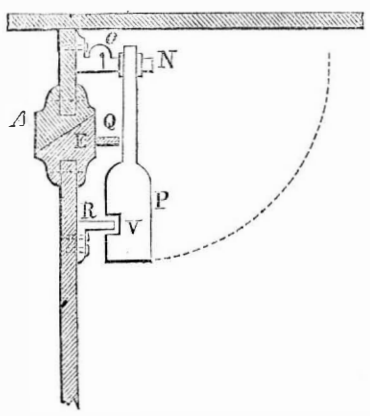
Improved Tops for Railroad Cars.

The number of accidents which yearly occur on our railroads, the amount of human life lost and property destroyed, have become a most serious consideration with all who ever do or are likely to travel, and each one in their own way tries to think of a plan whereby these accidents (many of them the result of carelessness) can be avoided. Let us recapitulate the account of two accidents of somewhat recent occurrence. On the Camden and Amboy Railroad, near Burlington, and also on the North Pennsylvania Railroad, near Gwynnedd. The wounded and suffering passengers were compelled to linger a long time within the wrecked cars, jammed between broken timbers until some means on the outside were provided to break open their prison house, and extricate them from their perilous and painful condition. In the latter case referred to, the wrecked cars having taken fire, a number of persons were burned to death before the means were at hand to break open the cars, and let the sufferers out. These occurrences are painful in the extreme, and if we cannot at present invent, discover or contrive a method either of preventing accidents or of holding some one individual responsible for the lives of the persons in a train of cars, we can at least attempt to alleviate the horror of accidents when they do happen.

The subject of our engraving is a proposal for attaining this end, and is simple in its construction, being nothing more than an improvement in the making of the roofs of cars. The ordinary roof is part and parcel of the car, and in case of accident there is no means of exit through it, should the doors be jammed up, and should the cars go over a drawbridge, or any way fall into the water, the travellers must die the awful death of drowning, but with this roof it is not so, as it could be lifted off and give them a chance of escape. This roof is made of light metal, in a semi-cylindrical form, and is capable of being detached from the car by the slightest disturbance of the center of gravity.

Figure 1 shows a view of a car with the roof lifted up, it is attached longitudinally by means of a groove in the side of the car in which the edge fits, and in which it can slide up and down. Figure 3 shows the method of

Fig. 3



attachment at the ends; it is a section through the fastening apparatus. E is a metallic piece fitting on the end of the car. A is a similar piece forming part of the roof, from the upper part of which (inside the car) projects the piece, O N, having a rule joint at O, only capable of opening upwards, and round at N, on this end, a pendulum, P V, is free to swing to and from the sides of the car, and a piece, R, curved to the arc described by V, is fastened to the end; the piece, Q, also projects from E. Figure 2 at once explains itself; it represents an accident. One car has capsized, and the roof has been instantly thrown off, giving the passengers a place of exit; the other car has slipped into the water, the roof has here also slid off and forms a boat, in which the passengers can rest until aid is brought to them. The operation is as follows:—

Suppose a car to be in the act of capsizing, the pendulum swings beyond the limits of the piece, R, and the roof is unfastened and slides off; or suppose that one end sinks down through a broken arch, or down an embankment, the pendulum, P V, describes (by means of the rule joint, O) the arc marked in

POTTS' TOPS FOR RAILROAD CARS.

Fig. 1

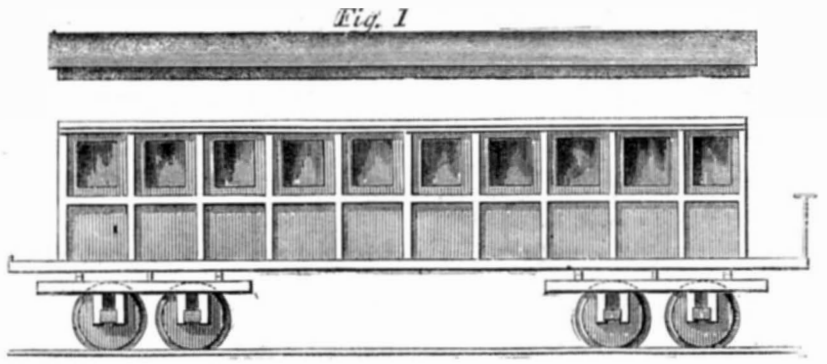


Fig. 2

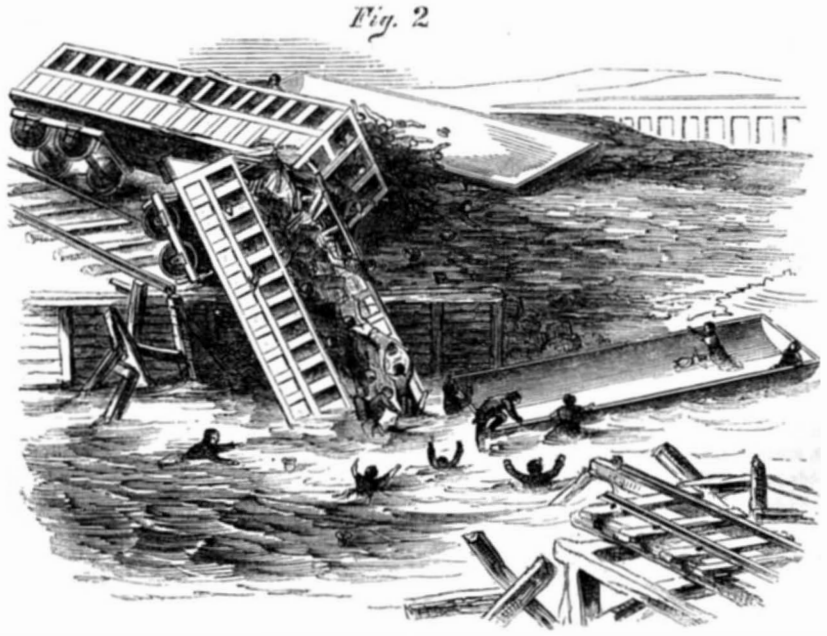
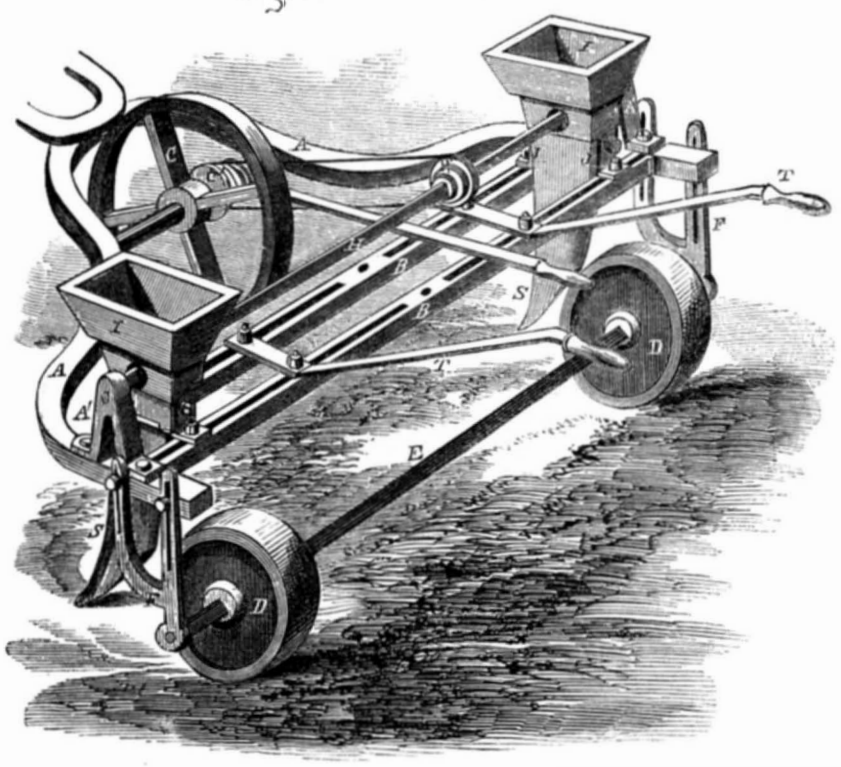


Fig. 3, and loosens one end; the piece, Q, at the other end of the car comes in contact with the other, opens that, and then the roof is free to slide off. An invention of this kind, when practicable, is of the greatest value, and should the success of this one be even an approximation to the ideas of the inventor, it will be of the greatest service.

It was patented Aug. 11, 1857, and for further particulars and information address Albert Potts, corner Third and Willow streets, Philadelphia, Pa.

GOULD AND FLANDERS' SEED PLANTER.

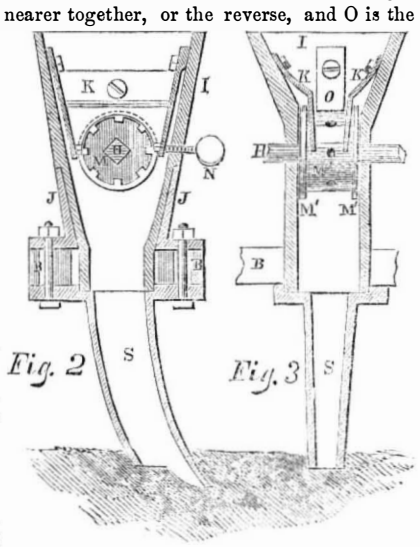
Fig. 1



The improvements in this seed planter, on which the inventors have obtained a patent, lie in the capability of adjustment of the planters and rollers or following wheel, and also in the feeding device. The latter is so arranged that no seed can drop between the delivery wheel and sides of the hopper as is is often the case.

These various modifications will be understood by reference to the engravings, Fig. 1 being a perspective view of the whole, Fig. 2 a transverse section of hopper, and Fig. 3 a longitudinal section of the same. Similar letters of reference indicate like parts in each figure. A is the frame, and A′ two pedestals which support the square axle, H, along which the slotted crossbars, B B, and the two hoppers, I, are capable of moving either nearer to or further from each other. C is the leading wheel, and C′ a cone pulley on its axle, which by a strap over it, and the cone pulley, H′, give motion to the regulating device. D D are the trailing wheels mounted on the square shaft, E, which is kept in position by an adjustable bracket, F, so that it is capable of a vertical motion, and the wheels, D D, can be moved to correspond with the hoppers, I. J J are knee brackets to support I.

In Figs. 2 and 3, K is the inside hopper shell, which is so shaped (as seen in Fig. 3) that it prevents the seed from falling between the sides of the hopper and the distributing wheel, M, with collars on its edge, M′. N is a screw by whose means K K are brought nearer together, or the reverse, and O is the



scraper which only allows a certain amount of seed to pass under it in the perforations on M. S S are the hollow shares and diggers, and T T, Fig. 1, the guiding handles.

It was patented last week, and it will be found in our List of Claims on another page. The inventors are Aaron M. Gould and Albert Flanders, Middleport, N Y., from whom all further particulars and information may be obtained.

Rollers for Calendering, Mangling, &c.

John Worsley, of Providence, R. I., has recently secured an English patent through the Scientific American Patent Agency, for an improvement in rollers for calendering, and other processes of analogous character, which consists in making them of husks of the common Indian corn. The advantages of such rollers are, that they retain their cylindrical form better, are less affected by wet, and wear smoother than those made of cotton, paper, wood, or other material commonly used.

The fibers are taken in a dry state, or only very slightly moistened, and placed in handfuls in an upright cylindrical vessel, having a stick or rod set upright in its center, and packed and pressed together to form cylindrical masses, each having a hole in its center. A suitable number of these cylinders being obtained, the shaft for a roller, having an iron collar fast near one end, is driven through as many as its length will contain, and the whole are then submitted to pressure in a direction parallel with the axis of the shaft, more cylinders being placed on the shaft as those previously placed on are compressed sufficiently to make room for them, until the shaft has received a sufficient number. When the fibers are thus compressed together in a compact and solid mass, another collar is placed on the shaft, and secured to confine them, and the exterior of the mass of fibre is turned off in a lathe, to bring the roller to a cylindrical form of proper size, in the same manner as other calendering rollers are turned, and the roller is then ready for use.

Acknowledgements.

We are indebted to Hon. Joseph Holt for a copy of the Commissioner of Patent's Reports on Agriculture for 1856.

Hon. Thomas R. Whitney, M. C. for New York, has our thanks for his generous contributions to our library in the shape of valuable Reports.

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Scientific American.

NEW YORK, OCTOBER 17, 1857.

The New Commissioner of Patents.

Commissioner Holt has been so much engaged with pressing duties of various kinds since his recent acceptance of the office, that he has been unable to give every case of appeal a personal hearing. He has, however, adopted a new and most excellent rule in regard to appeals, viz: the submission of each case to a board of two Examiners, and in the event of their disagreement, then to hear the case himself. This method gives satisfaction to all applicants, for it affords them a better guarantee of justice than where the appeal is left to the decision of a single individual.

We present below a copy of Commissioner Holt's decision in the case of Joseph Davis' application, which was twice rejected and afterwards referred to a board of Chief Examiners, who could not agree. The decision is just and liberal, and shows that the Commissioner has correct views of his duties. At a single sweep he sets aside the venerable but narrow-minded practice of the Office in refusing patents because the improvement claimed may happen to be—in the Examiners' notion—a simple one. The declaration of the Commissioner, that "very slight changes often produce the greatest and most valuable results," is susceptible of the most complete proof, and we are gratified beyond measure to find this view so clearly set forth, as likely to be the future practice of the Office under its new administration. We have every reason to believe that inventors will find a true and consistent defender of their rights in the new Commissioner:—

COMMISSIONER HOLT'S DECISION.

U. S. PATENT OFFICE, Sept. 28, 1857.

In the matter of Joseph Davis' application for a patent for an alleged improvement in Carding Machines. This case having been twice rejected, and on appeal to the Commissioner by him referred to a board of Examiners, who have been unable to agree in opinion, I have given to the questions involved a personal examination, and have arrived at the following conclusions:—

The result attained by the improvement now sought to be patented—the saving of the fine fibres hitherto thrown off the carding cylinder and lost—is admitted to be new and important, indeed eminently so, being the supply of what has ever been a desideratum in carding machines; such being the fact, the general rule of law is that a sufficient amount of invention to support a patent *will be presumed*. It is objected, however, in substance, that this new and valuable result is but what is technically known in legal parlance as a "second use;" if so, it is of course not patentable. But it is of the essence of a "second use," as such, that it should be produced by machinery or a process already known, and by a mode of operation of such machinery already in use. Can it be successfully maintained that such is the case here? An inspection of the machine has failed to satisfy my mind of the appositeness of the reference given. The improvement patented by Daniels & Dewey, consisted in a combination of smooth rollers, with a wool-picking machine; the one under consideration consists in a similar combination with a wool carding machine. One of the elements of the combination—the smooth rollers—is the same in both; but the other being essentially different, the two improvements, which consist also in combinations, are as distinct and different as a wool-picking is from a wool-carding machine. The mode of operation is also entirely different. In Daniels & Dewey's machine, the rollers turn in *opposite* directions, and without this opposite rotary motion, the result aimed at—the throwing off the dirt and other impurities—would not have been accomplished. In Davis' machine the end sought to be attained is just the reverse of this, its functions being not to throw off, but to catch, retain, and restore to the main cylinder those fibres which, under the operation of Daniels & Dewey's machine, are cast away and lost. The end being thus different, the mode of action is accordingly varied. The rotary rollers move, not in opposite, but in the *same* direction, and this is as necessary to the object to be effected as are the opposite movements to the object contemplated by Daniels & Dewey. It may be said that this is a slight change, and one which might readily suggest itself to any mechanic. But this does not furnish the true test of the patentability of an invention. *Very slight changes often produce the greatest and most valuable results*, and it is by those results, and by them only, that the value and importance of the changes are to be ascertained.

Believing then, that the machine under consideration presents a new combination, a new mode of operation, and produces a new and most useful result, I cannot hesitate to grant the application for a patent.

J. HOLT, Commissioner.

Rapid Circulation Necessary for City Water.

A very important discussion has been going on for some time at Albany, N. Y., resulting from the defective head of water which supplies that city, and the annual recurrence of its impure condition since the works were opened, on which points an able series of papers have been published by Alderman McElroy, Chairman of the Water Committee for three years.

The positions assumed by him, and defended at length with a great array of facts and authorities, are:—That water supplied by gravitation needs large storing reservoirs of limited depth, and being exposed to solar action in the hot months, without free circulation, involves serious objections. That the causes of the impure water at Albany are clearly traceable to its fermentation under solar action, for which the only preventive and remedy is its rapid circulation. That the daily supply of water to a city in warm weather should invariably be taken from the surface water of the reservoirs, which should also be arranged so as to waste from the bottom. That the use of three and four-inch pipe for distribution service is objectionable on account of producing an excess of friction.

These and other points are treated in the papers referred to, involving questions for hydraulic engineers which have attracted too little attention. The people of Albany were afflicted with impure water during the past as well as several previous summers, and our readers will remember that very serious trouble was experienced from the same causes in Boston in 1854. We have been informed that the utmost care is now exercised in promoting free circulation in Lake Cochituate, and with success, to prevent a recurrence of the evil. We have also been informed that in Liverpool (Eng.,) and other cities, much inconvenience has recently been experienced from impure water arising no doubt from want of rapid circulation. This city (New York) has never experienced any of those evils complained of by the people of Boston and Albany. The rapid consumption of the supply to our reservoirs fortunately keeps them always at a low head, and thus prevents stagnation and fermentation by solar action. This is a subject which deserves general and serious attention in all those cities and villages supplied by water from reservoirs, no question being of more importance as regards health than pure water.

The New Front for the Patent Office.

The western front of the United States Patent Office is now almost entirely completed, and preparations are now making for its occupancy. The second floor is thrown into one immense saloon, and is set apart for the reception of the rejected models. This new saloon is of the same size as the splendid hall of the eastern front of the edifice, now occupied by the patented models.

The rejected models are to be placed in glass cases, and arranged in the same neat and careful manner as the patented models. Commissioner Holt is now engaged in determining the style of the cases, arrangement, etc., for the new hall. They are to be substantial and ornamental. It is probable that iron will be the material selected for the frames.

The northern front of the Patent Office is now in course of erection, and when finished, the building will cover an entire square. There are few palaces or public buildings in the world that will compare with the Patent Office in point of architectural beauty.

Patent Office Management.—Liberality of Examiners.—Sale of Patent Rights.

The new Commissioner of Patents is giving universal satisfaction, so far as we can learn; and when there is any dissatisfaction felt concerning the Patent Office management, we hear of it about as early as anybody else. Every department now seems to be governed by faithful and efficient officers.

We notice an increasing disposition among most of the Examiners to give inventors the benefit of any doubt existing in regard to the propriety of deciding favorably upon cases up for examination. This is as it should be. Many an honest inventor has been deprived of a patent, which, if obtained, would have been a means of yielding to him quite a handsome revenue, but which he could not get without going to an expense which he could not afford, and all because the Examiner *thought* a device *described* in some foreign publication contained features substantially the same as that upon which the poor American applicant was seeking to obtain a patent. A better day has dawned for inventors; and we are rejoiced that the hair-splitting, niggardly system which characterized the practice of some of the Examiners a short time ago, has been materially changed.

We believe there never was a more propitious time for inventors to bring their applications before the Patent Office than the present; and we never knew of so many sales of patent rights by which large sums had been realized, as we have heard of latterly. It really seems as if patent rights were the only property that sustained its *par* value under the present money pressure; but judging from the prices for which some very trifling inventions have been sold for, within a few weeks, we think the market for patents decidedly improving. Mechanics who are out of employment, cannot, in our opinion, do better than to employ their time and talents in trying to improve upon machinery with which they are familiar, or inventing something original. We were forcibly impressed with the correctness of these remarks upon inquiries made among the exhibitors at the Crystal Palace since the writing of the above lines. We find many rights have been sold by exhibitors since they have operated their inventions in the Exhibition, besides many have received large orders for the manufactured machines.

Financial Matters in New York.

At the time of penning the article in last week's number, on the financial panic which exists throughout the country, we were in hopes that in our next we could record a better state of things, and that uncurrent money and exchange could be bought and sold in this market for about the rates usually demanded. We regret to state that no improvement is visible in this metropolis, and many of our merchant princes have been obliged to succumb to the pressure, and suspend payment within the past week. Two mercantile houses whose assets, over and above their indebtedness, are said to amount to considerably more than one million of dollars each, have been unable to meet their payments, and consequently have suspended. Property to an enormous amount is held by each of them, but to realize the cash to meet their obligations was out of the question, and the consequence is that they have, according to common parlance, failed.

A few days ago we were informed, by a member of our Stock Exchange, that a well known shipping merchant of this city had no doubt sacrificed over one million of dollars, to raise money to meet his daily obligations which have matured this autumn. These amounts are almost incredible, but the information is derived from a source which may be considered authentic, and we give it only as a specimen of the state of financial affairs in this city, and yet neighboring cities are in a still worse condition than New York. We believe, however, that this state of affairs cannot continue long, and that a better day for the merchant, mechanic, and manufacturer will soon dawn. Inventive talent, we are happy to say, does not seem to be latent with our people, and we see no reason why it should not improve under the fostering care of our well-managed Patent Office, and with an increasing demand for patent property by capitalists as an incentive.

How to Make Remittances.

In a paragraph under the head of "Financial Panic," in our last week's paper, we advised parties who resided in the country and wished to remit monies to this office, in any inconsiderable amount, to procure a certificate of deposit from some bank nearest their residence, and forward it to us instead of bills. We have since concluded not to trouble our correspondents to obtain certificates as above proposed, but to receive bills at *par* on any specie-paying bank whose issues pass current at the place whence sent. This will save our friends much trouble and will answer our purpose as well as bank certificates.

Of course we expect parties who reside where bills of exchange on New York can be obtained, to remit large sums in that manner, as usual, but where exchange cannot be procured, our correspondents may avail themselves of the liberal offer advanced in the preceding paragraph. But what would suit us still better, and relieve the sender of all risk, would be to remit in gold or silver by express. This may be done at our risk and expense, when the amount exceeds twenty dollars. Take a receipt from the express company, signifying the amount, and send it to us by mail.

A Large Reward for a Slight Exertion.

Owing to the scarcity of money throughout the country, and the temporary paralysis thereby existing in mechanical and manufacturing business in consequence, we find that that there is not the usual number of competitors for our annual prizes this year, and those who have entered the field of competition do not furnish lists as large as heretofore by a great per centage.

Setting aside any personal interest we have in augmenting our subscription list, we are of the candid opinion that no person who earns less than five dollars per day, and who lives in a vicinity tolerably populous, can earn money easier, or more of it in a given time, than by getting up a club of subscribers for the SCIENTIFIC AMERICAN.

It will require but little exertion in the right direction to obtain our first prize of THREE HUNDRED DOLLARS; and should a competitor, in aiming at the first, fall a trifle short of obtaining it, the next prize is but fifty dollars less, and so they decrease in proper ratio down to twenty dollars,

We commend to the attention of our mechanics generally, and especially those out of employment, our prospectus and the prizes we offer, promising to promptly meet the payment of the FIFTEEN HUNDRED DOLLARS *in gold*, immediately after the first of January, 1858.

Prospectuses and specimen copies of the paper may be had gratuitously on application at the office of publication.

SUSPENSION BRIDGES.—There is no truth in the rumor that a tubular bridge is to be built in the place of the suspension one now spanning the Niagara river. The railroad company has a long lease of the present bridge, and have no idea of expending money on a new structure.

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The Twenty-ninth Annual Fair of the American Institute.

FOURTH WEEK.

Each week seems to bring increasing success to the Fair at the Crystal Palace, the floors and galleries of which are nightly crowded with admiring visitors who, if we may judge from the pleasure and good humor beaming on every one's countenance, appear to be charmed with all they see. Those who have not already visited the Fair during the evening can form no adequate conception of the magnificence of the *tout ensemble*, when seen under the effect of the illuminating power of five thousand gas lights, irradiating the multifarious objects on exhibition, which, combined with the throng of gayly dressed, bustling human beings, form a scene of enchantment rarely equaled, and one which should be viewed by all who can obtain a leisure evening.

The illumination of the Palace is effected through sixteen meters, which, of course, measure the flow of gas into the building; and if figures do not lie, 159,200 cubic feet of gas were consumed during a single week, which quantity cost $319 40. There are over 25,000 linear feet of gas-pipes employed throughout the structure.

So far as the number, variety, ingenuity, merit, judicious arrangement and display of articles is concerned, the present Fair is indisputably the best ever yet held by the American Institute in this city. We are happy to learn that, financially, it is also successful—the average receipts, last week, amounting to about $1,000 per day. We will now proceed to resume our descriptions in the order we adopted last week, namely, to describe together each class of machines for similar purposes, commencing with the

ROPE MACHINES.

There are three machines for making rope on exhibition, namely, that of Arad Woodworth, of Boston, Mass., patented May, 1855; Thomas Boone, of Brooklyn, N. Y., patented July, 1856 (illustrated on page 193, Vol. XII., Scientific American), and W. R. Dutcher, of Lansingburg, N. Y., patented on the 9th of June last. The old method, and that which is at present generally practised in making rope, is to spin the hemp into yarn in one machine, then form the yarn into strands by twisting several of them together in another, then *laying* several strands into rope by other machinery. The laying of rope required long sheds called rope-walks of such length as the rope to be manufactured. A rope of six hundred feet in length required a rope-walk six hundred feet long. The object of the three machines referred to above is to manufacture rope of any length, from a few feet up to a hundred miles, in a very limited space, not more than from six to ten feet! Besides this object, two of these machines combine the operations of forming strands from the yarn, and laying them into rope by one continuous operation. The machine of Thomas Boone is designed for laying rope from strands only—a series of strand flyers being placed one above the other in separate frames, rotating in the same direction, and guiding the strands into a *laying top*, where they are twisted into rope. It is a compact machine, and occupies but a small space. For a full description of its construction and operation, we refer our readers to the page in our last volume mentioned above.

The machine of Arad Woodworth is horizontal, and makes rope from the yarn. Several yarn bobbins are placed on a flyer inside of another flyer which revolves in a contrary direction. The yarns are guided at one end through tubes, and twisted together into a strand, which is conducted to the outside flyer at one end, and receives another twist, thence along the arm of this flyer to its other end, where it receives another twist, and thus for every single revolution of the flyers three twists are put into each strand. Three strands are formed in this machine, and are conducted through revolving tubes and laid into rope. By the peculiar construction and operation of the flyers—one being placed inside of another, and revolving in contrary directions—three twists are put into each strand during each revolution of the laying-top. Excellent small rope of one and a half inches in circumference is made in this machine, at the rate of five hundred pounds per day. The same principle of twisting by combined flyers is applied by Mr. Woodworth to a spinning-jenny and a cordage machine, which are also exhibited here for the first time.

The third rope machine, that of W. R. Dutcher, is vertical, and, like Woodworth's, combines two separate operations, making strands from the yarn and forming them into rope at one continuous operation. The nature of this improvement consists in a self-adjusting thimble, combined with a grooved cone, through the grooves of which the yarns are run and kept at a proper tension. It has also the advantage of being arranged to make rope from strands as well as from yarn, and is compact and simple in construction. As rope-walks are very liable to take fire, owing to the great amount of combustible materials used—tar and grease—it appears to us that as these short machines can be placed in compact fireproof buildings, they will ultimately supersede, at least in many cases, the long rope-walk machinery now in use.

WOOD PLANERS.

A compact and neat planer adapted for joiners and cabinet-makers, to reduce short lengths of boards, plank, &c., to any desired thickness, is exhibited by H. B. Smith, of Lowell, Mass. It is built on the Woodworth principle, with rotary cutter and feed pressure rolls. It is capable of planing stuff twenty inches wide to any thickness. The feed table is raised and lowered by a screw, and an index and pointer indicates its exact distance in inches and fractions from the cutter; and as the lower feed roll is attached to this table, it follows that the board can be fed in exactly and conveniently to be reduced to any degree of thickness. It is well adapted for small shops, as it can be operated with a very small amount of power, by running a board through once or several times, and taking a limited cut on each occasion. It occupies but a few feet of space, and produces excellent work. This is but the second machine of the kind yet manufactured.

There are four large planing machines exhibited. The most peculiar of the number is that of C. H. Denison, of Green River, Vt., patented Feb. 12, 1856, and illustrated on page 57, Vol. XII., Scientific American. It has a large circular ring bed or feed table, and a rotating plane with pressure rollers on each side. This machine is of large dimensions, capable of executing an immense amount of work, and is manufactured at Fitchburg, Mass., by the Fitchburg Foundry Machine Company. A full description is given of it on the page referred to above.

James A. Woodbury, of Sudbury street, Boston, has his "Edge Cutter" for notching boards and planks on the planer which he exhibits. This tongueing and grooving device was patented on the 21st November, 1854, and illustrated on page 169 of our last volume.

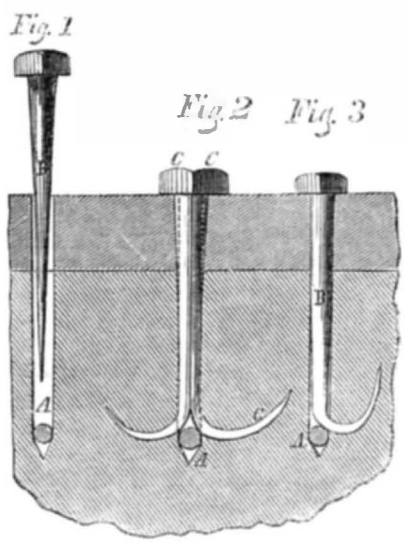
Messrs. Jones & Crowell, corner of Elm and Franklin streets, this city, and Messrs. Ball & Ballard, of Worcester, Mass., are exhibitors of the other two planers. All these machines have rotary cutters and pressure feed rollers, and are well constructed to execute good work. There is not a single *line cutter* in the Fair, if we recollect rightly; either one or more line cutters have been exhibited at every previous occasion of the same kind.

DOUBLE BRICK MACHINE.

There is but one brick machine in the Fair, and it is only a large working model. It is that of W. T. Wood, of Hartford, Conn., patented on the 3d of February last. It presses and discharges a set of molds at each side, and is therefore "double action." The clay and sand are fed into a pug mill, the vertical shaft of which passes down through the bottom, and has two cams on it which discharge a mold from each side at every revolution. At the same time that a mold is filled from the pug mill, a plunger is also forced down at each side by a cam, and presses the tempered clay in the mold box, which has gates upon it for discharging stones, &c., that may be in the clay. It is a very simple machine of the kind, and is capable of pressing forty thousand brick per day.

BATES' SELF-CLINCHING SPIKE.

The accompanying engravings represent a very simple and cheap mode of securely clinching spikes when driven but partly through timber. It is the invention of Mr. Horatio Bates, of this city, and was secured by patent on the 7th of March last. It consists in boring in the timber a hole of lesser depth than the spike or nail to be received, and dropping or inserting therein in advance of the



spike or nail a ball or other piece of iron or any hard material represented by A. When the spike, B, is driven, the point coming in contact with A is deflected, and the end is caused to curl up in the timber in the form of a hook, and thus to clinch itself as shown in Figs. 2 and 3.

Fig. 3 shows a single spike thus driven. The point can be made to turn itself in any desired direction, to avoid running out of the stuff, or to avoid contact with any other spike or bolt, by simply touching the point with the hammer, and giving it a slight bend in the the desired direction before inserting it.

Fig. 2 represents two spikes, C, similar to the last, except that each carry a head on one side only. On driving two such spikes at the same time, each with the point turned slightly away from the other, the clinched points are securely anchored on each side as represented.

Corpus Christi, Texas.

A correspondent, Mr. D. S. Howard, of Albany, N. Y., the inventor and patentee of the Dredging Machine described and engraved on page 304, Vol. 11, Scientific American, has sent us a communication in regard to Corpus Christi and its adjacent country, from which we condense the following: "The country is fast filling up with emigrants of the most reliable kind, as they pay for their land in advance. Cattle of the finest description are easily reared in this region with no more care than simply marking them and turning them out to graze where they can. Horses seem an almost spontaneous production of the soil, although from their roving habits they are not of so fine a quality as the cattle. The settlers make water holes by damming up the ravines, which fill with rain, and they never become stagnant in the hottest weather. The climate is genial and a healthy breeze blows from the sea during the warm weather. The nearest port to the Pacific is Corpus Christi, being 100 miles nearer than any other on the Atlantic or Gulf coast. It contains 2000 inhabitants who are daily becoming more numerous. The country is subject to droughts, but heavy dews supply the place of rain, so that seed time and harvest come in their appointed seasons. A canal is now being cut between Aransas and Corpus Christi bays, which will admit sea-going vessels to the wharves of the latter city." This is being done by one of Mr. Howard's machines which is working to great satisfaction, as it does its duty cheaply and well.

The Emperor of Russia in the Hands of Yankees.—This distinguished personage is at loggerheads with Colonel Colt in relation to a contract for fire-arms. Both parties have sensibly agreed to submit the matter in controversy to Adjutant General Cooper, U. S. A., George S. Hillard, Esq., of Boston, and Hon. Loren P. Waldo, of the Supreme Court of Connecticut, who are now hearing the case in Hartford.

Corn and Whiskey.—At a recent convention of whiskey makers held in Cincinnati, O., it appeared that twenty-three establishments (a small part of the whole) consume daily 14,000 bushels of grain—in round numbers over 5,000,000 bushels a year. This is using bread to destroy bread. Thousands, by using the whiskey thus made, find themselves and children starving for want of the grain of which it is made.

Close Guessing.—Some time ago, the editors of the Mobile *Tribune* offered a handsome silver service, worth $300, to the person who could make the best guess as to the amount of the cotton crop of 1856-7. W. B. Hamilton, of Mobile, estimated 2,939,537 bales. The total crop is 2,939,515 bales; the estimate being being only 22 bales above the actual receipts.

Fire.—The town of Columbia, Cal., was nearly destroyed by fire on the 26th of August, within the space of three hours. The fire was caused by an opium smoker, and originated in a brothel. Several lives were lost, and property valued at $600,000 destroyed.

The Capitol at Washington is to be a magnificent structure when completed. The old buildings cost $3,000,000, and it is estimated that the extension will cost $7,000,000 more. $1,500,000 is to be expended on the new dome. It will be a work of great architectural beauty.

Mormons.—This interesting band of modern Tarquins are preparing to fight the general government. Rumor says that Brigham Young has been arrested for treason, and hurried off to Washington for trial. We hope this may prove true.

Patent Office.—The newly appointed Examiners are reported as being very liberal in their views towards inventors, and will give them the benefit of any doubts that may arise in the examination of their cases. This will be good news for inventors.

Coal Mines.—A large party of men have commenced to work the San Diego coal mines. It is thought that in a short time these mines will yield a better quality of anthracite coal than is now sent to California from Pennsylvania and New York.

A Rich Inventor.—Mr. Muntz, patentee of an improved yellow metal for sheathing of ships, recently died in England, and left personal property, wholly irrespective of his real estate, amounting to $3,000,000.

Earthquakes and Gold.—Gold countries seem to be as full of earthquakes as of precious metals. New mines have been discovered in California, and another earthquake has visited that country.

Honey Bees.—A practised aparian recommends that bees should be covered up in the winter, giving a small vent for the air. They live on one-third less food by so doing.

Straw Bonnets.—There are annually manufactured, in the town of Franklin, Mass., 7,000,000 straw bonnets; and in the town of Foxboro', near to it, as many more.

Gold.—The steamer *Star of the West* arrived at this port on the 4th inst. with treasure to the amount of $1,268,734.

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Correspondents

S. J. S., of Miss.—The best brass solder is composed of six parts of brass, one of tin, and one of zinc; the brass is first melted, then the tin, then the zinc, the whole being well stirred with a stick, to incorporate them thoroughly. Gold solders depend on the carat of the metal to be joined; one for $15 gold is this: 1 dwt. of $15 gold, 10 grains of silver, 8 grs. of copper, and 4 grs. of brass. This is a good and useful receipt. For silver, 2 parts of fine silver and 1 part of brass wire will answer every purpose, and will be improved by the addition of three-fourths of a part of arsenic. These will all fuse before the mouth of a blow-pipe.

T. T., of N. Y.—The proportions for the so-called Babbitt's metal is 24 parts of copper, 24 parts of tin, and 8 of antimony, by weight. The application of the spring balance to the cable, to indicate the strain, is not patentable. The spring balance being a well known device for indicating strain, tension, or pressure, its application to any particular or specific purpose is not an invention.

E. H. L., of Ga.—The shaking of your house when a train of cars passes, is only due to the concussion of so great a weight passing by. Electricity has nothing to do with it.

W. R. T., of Pa.—The best solvent for india rubber is coal tar naphtha; nothing will restore it to its original elasticity. Slow evaporation at low temperatures does not much influence its qualities.

J. H. P., of Me.—The best method of bleaching your yacht sails is to wash them in fresh water, with a very little lime, and let them dry in the sun.

W. R. B., of Mo.—Your explanation of the gyroscope paradox is old. We only published the explanation of Mr. McCarroll because of its novelty, and not because we had any great faith in it ourselves.

J. N., of Texas, G. B., of N. Y., S. S., of Pa., and D. H. P., of Texas.—Your suggestions concerning the Atlantic cable are impracticable; and were they of real value, there would be no occasion for their use, as it has been decided that with an alteration of the paying-out machinery it will sink very well, unaffected by ocean currents or any other source of disturbance. However, although your ideas are this time of little practical worth, yet they demonstrate great ingenuity on the part of their authors, and on some other subjects we shall be happy to hear from you again.

H. H., of Pa.—We do not know where the leaves of the *cannabis indicus* can be procured. Write to the physician "whose sands of life have nearly run out." He will probably survive until you can get his reply.

J. D., of Conn.—Your inquire why we are unwilling to advertise your patent medicine. We reply that we cannot admit this class of advertisements into our columns, for, as a general thing, we regard advertised medicines as humbugs. The public are dragged too much already, and we cannot consent to help on the business.

J. N. R., of N. Y.—You will find an engraving and description of Page's electro-magnetic engine in No. 9, Vol. 7, Scientific American.

J. M. C., of N. Y.—Use thick hair felt, over which place a covering of canvas. By this means you can carry steam through metallic pipes to a great distance.

T. McK., of Mass.—We have heard that copies of daguerreotypes have been taken from the plate by the galvanic battery for printing, but have never seen a copy of the picture, with all its lights and shades, taken by a battery, as you have done. Will you send us a description of the process? It must be interesting in a scientific point of view.

J. F. W., of Vt.—Good sand for molding contains 94 parts of silex, from 3 to 6 parts of clay, and a little oxyd of iron in every 100 parts by measure. In practice, however, different castings require different kinds of sand—some coarse, and some fine. A sign of good molding sand is, that when squeezed in the hand, it assumes the finest impressions of the hand without adhering to it. Very fine emery is employed for fine polishing wheels. The surface of the wheels are coated with glue or copal varnish, and the emery then dusted on and allowed to dry.

M. J. H., of N. Y.—The idea of driving ship's pumps by means of a screw like a propeller, having a rotary motion imparted to it by the vessel's motion through the water, is an old one. We cannot recollect who was the first inventor. We know of no life preserver constructed as you propose, of one or more hollow canisters filled with a number of smaller canisters; but it has been proposed to make hollow metal life rafts in compartments, which is almost, if not quite equivalent, to your invention. It is probable, however, that if you can show an advantage in the use of separate canisters inside the larger one, a patent might be obtained.

J. A. B., of Fla.—We wrote to you on the 11th of September in reference to your lock improvement.

W. & S., of Pa.—You say you employ a wind mill for grinding corn, which has arms, with sails of thin boards hinged and adjusted to the action of the wind by weights. Your are surprised that there is no perceptible increase in speed when the mill has run out of corn, and ask an explanation. You seem to overlook the fact that the weights referred to act the part of a governor, and thus prevent an increase of speed. There is no other explanation which can be given of it.

Money received at the Scientific American Office on account of Patent Office business, for the week ending Saturday, October 10, 1857:—

C. R. B., of N. Y., $32; W. W. D., of Cal., $200; J. M., of S. C., $30; S. T. W., of Ohio, $10; B. M., of N. Y., $30; H. W. B., of N. J., $50; G. H. C., of R. I., $20; J. C., of N. Y., $30; F. G., of N. Y., $30; J. W., of Pa., $30; W. De G., of N. Y., $30; J. B. E., of Pa., $60; S. P., of Ill., $25; N. W. H., of N. Y., $30; D. G., of R. I., $25; J. H., of Ill., $55; J. P. B., of Conn., $25; N. J. S., of Ala., $25; S. C., of S. C., $30; U. B. V., of Pa., $55; G. C., of N. Y., $35; D. B., of N. Y., $57; S. D. C., of Wis., $30; J. E. N., of N. Y., $30; J. L. A., of N. J., $12; and $30 in gold from Massillon, O. The party who made this remittance will please send us his name, that we may credit the amount.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Oct. 10, 1857:

C. & N., of N. C.; McC. & C., of N. Y.; E. D., of La.; C. & W., of N. Y.; C. R. B., of N. Y.; N. J. S., Ala.; S. P., of Ill.; J. E. N., of N. Y.; J. P. B., of Conn.; N. W. H., of N. Y.; D. G., of Ky.; J. L. A., of N. J.; S. D. C., of Wis.; D. B., of N. Y.

Literary Notices.

A MANUAL OF LINEAR PERSPECTIVE. By R. S. Smith, Professor of Mathematics and Civil Engineering in the Brooklyn Collegiate and Polytechnic Institute. New York: Wiley & Halsted. This work must have been the result of much study, and shows that the author has a thorough knowledge of his subject, and, moreover, that he is able to convey it to the reader. It is arranged in problems, and has many good illustrations; it will do much toward giving Perspective a place among the branches of mathematical science which it has never occupied before. To the artist, mathematician and student, it will be a valuable book.

HYDRIATIC TREATMENT OF SCARLET FEVER. By Chas. Munde, M. D., Ph. D. Published by William Rudde, New York. This is more especially addressed to the public, and is an able exposition of the treatment of scarlet fever by water. It has one merit, and that is that the author has discarded the quack wording of an ordinary popular medical treatise, and writes plain common sense. We do not approve, however, of any specific and patent method of curing disease, for we believe that each disease is differently developed in each case, and requires a treatment peculiar to itself, and to discover this is the object of the true physician.

ILLUSTRATED ANNUAL REGISTER OF RURAL AFFAIRS AND CULTIVATOR ALMANAC FOR 1858, containing practical suggestions for the farmer and horticulturist, embellished with 130 engravings, including houses, farm buildings, implements, domestic animals, fruits, flowers, &c. By J. J. Thomas. Luther Tucker & Son, Albany, N. Y., Publishers. For sale by Fowler & Wells, 308 Broadway, New York. This is a capital work for the household, containing much useful and interesting matter. To farmers and gardeners it is invaluable.

THE ILLUSTRATED FAMILY GYMNASIUM—By R. T. Trail, M.D., Fowler & Wells, New York, is a little book treating of the subject of its title in a masterly and complete manner; and were its precepts to be followed by every family, we should not see so many old-young men and women, nor so many deformities and so much disease in our population.

THE YOUNG MEN'S MAGAZINE for October, published at 348 Broadway, New York, is very good. the two articles on "Fashionable Amusements" and "Science in America," being especially worthy of attention, as they are well written, and on popular subjects.

THE ECLECTIC MAGAZINE for this month, W. H. Bidwell, New York, has a beautiful portrait of Charlotte Bronte, better known as "Currer Bell," and authoress of *Jane Eyre*, etc., and also has some excellent selections from foreign periodicals.

THE KNICKERBOCKER—A monthly magazine for October, Samuel Hueston, New York, has some very good articles, and a portrait of John T. Irving. The reviews are very impartial and correct.

We have also received the *Wisconsin Farmer*, published by Powers & Skinner, of Madison, Wis.; also *Hall's Journal of Health*.

TO OUR SUBSCRIBERS.

GIVE INTELLIGIBLE DIRECTIONS.—We often receive letters with money enclosed, requesting the paper sent for the amount of the enclosure, but no name of State given, and often with the name of the Post Office also omitted. Persons should be careful to write their names plainly when they address publishers, and to name the Post Office at which they wish to receive their paper, and the State in which the Post Office is located.

RECEIPTS.—When money is paid at the office for subscription, a receipt for it will always be given; but when subscribers remit their money by mail, they may consider the arrival of the first paper a *bona fide* acknowledgment of the receipt of their funds. The Post Office law does not allow publishers to enclose receipts in the paper.

SUBSCRIBERS TO THE SCIENTIFIC AMERICAN who fail to receive their papers regularly, will oblige the publishers by stating their complaints in writing. Those who may have missed certain numbers can usually have them supplied by addressing a note to the office of publication.

EVERY SUBSCRIBER would do well to try and get one or more of his neighbors to send their names with his own, even if he has no wish to avail himself of our club rates. The larger the package of papers sent to one address, or the same Post Office, the greater is the certainty of getting the paper regularly. A single paper is sometimes mislaid or overlooked in sorting the mails at some one of the intermediate post offices through which it has to pass; while, on the contrary, we have noticed that a large package seldom fails to reach its proper destination.

TERMS OF ADVERTISING.

Twenty-five cents per line each insertion. We respectfully request that our patrons will make their advertisements as short as possible. Engravings cannot be admitted into the advertising columns.

*** All advertisements must be paid for before inserting.

SASH, BLIND AND DOOR FACTORY FOR Sale—For particulars address D. A. STEVENS, Beaver Dam, Dodge Co., Wis.

HONEY, HONEY, HONEY, HONEY—Every family should have GARDNER'S way for making honey—costs only six cents a pound. Read his advertisement.

CHESTER'S PORTABLE STEAM RADIATOR—For heating parlors, dining-rooms, railroad cars, &c., with gas, wood, or coal; patented June 30, 1857. For rights in the United States and Europe apply to the undersigned, enclosing stamps. No agents will be appointed. I. H. CHESTER, Cincinnati, Ohio.

IMPORTANT TO INVENTORS.

AMERICAN AND FOREIGN PATENT SOLICITORS.—Messrs. MUNN & CO., Proprietors of the SCIENTIFIC AMERICAN, continue to procure patents for inventors in the United States and all foreign countries on the most liberal terms. Our experience is of twelve years' standing, and our facilities are unequaled by any other agency in the world. The long experience we have had in preparing specifications and drawings has rendered us perfectly conversant with the mode of doing business at the United States Patent Office, and with most of the inventions which have been patented. Information concerning the patentability of inventions is freely given, without charge, on sending a model or drawing and description to this office. Consultation may be had with the firm, between nine and four o'clock, daily, at their principal office, 128 Fulton street, New York. Our branch offices are corner of F and Seventh streets, Washington, D. C.; No. 66 Chancery Lane, London; 29 Boulevard Saint Martin, Paris, and 3 Rue Therrsienne, Brussels. Circulars of information concerning the proper course to be pursued in obtaining patents through our Agency, the requirements of the Patent Office, etc., may be had gratis upon application to the principal office or either of the branches. Communications and remittances should be addressed to MUNN & CO., No. 128 Fulton st., New York.

The annexed letter from the late Commissioner of Patents we commend to the perusal of all persons interested in obtaining patents:—

MESSRS. MUNN & CO.:—I take pleasure in stating that while I held the office of Commissioner of Patents, MORE THAN ONE-FOURTH OF ALL THE BUSINESS OF THE OFFICE came through your hands. I have no doubt that the public confidence thus indicated has been fully deserved, as I have always observed, in all your intercourse with the office, a marked degree of promptness, skill, and fidelity to the interests of your employers.

Yours, very truly, CHAS. MASON.
August 14, 1857.

EXCELSIOR STEAM PUMPS, DIRECT and Double-Acting, manufactured and sold at 55 and 57 First st., Williamsburgh, N. Y., and 301 Pearl st., New York. May be seen in operation at J. O. Morse & Co., 79 John st., New York. GUILD, GARRISON & CO.

A NEW AND SCIENTIFIC INVENTION.—Dr. Cheever's Galvano-Electric Regenerator.—Patent issued January 15, 1856. A circular relating to the use of the instrument, embracing a general treatise of atony of the spermatic organs, the result of which tends to softening the medullary substance of which the brain is composed, may be had gratis, and will be sent to any address by mail by their indicating a desire to receive it. All letters should be directed to Dr. J. CHEEVER, No. 1 Tremont Temple, Boston.

STEAM PUMPS, BOILER FEED PUMPS, Stop Valves, Oil Cups, Cocks, Steam and Water Gages, sold by JAMES O. MORSE & CO., No. 79 John street, New York.

NOW OPEN AT THE CRYSTAL PALACE—Day and Evening, from 9 A. M., until 10 P. M.—the Twenty-ninth Annual Fair of the American Institute. This unequalled display of the products of our National Skill and Industry is now permanently open. Dodworth's Cornet Band will be in attendance every evening, and on Tuesday and Friday evenings of each week will perform a grand Instrumental Concert by programme. Champney's moving Panorama of the Rhine will be exhibited each day at noon, at 4 P. M., and on Monday and Saturday evenings at 8 o'clock.—Members can procure their tickets at the Palace.

WASHINGTON IRON WORKS—MALLERY, RAINS & CO., and HIGHLAND IRON WORKS—STANTON, MALLERY, RAINS & CO., of Newburg, N. Y.—Are extensively engaged in manufacturing all kinds of Steam Engines, Machinery and General Mill Work. They are also partners of the firm of STANTON, SNOW & CO., Car Wheel Manufacturers, Newburg, N. Y., and are prepared to furnish Railroad Cars and Car Wheels of superior construction. From the cheapness of real estate and reasonable price of labor, as well as their great facilities of transportation by two railroads and the Hudson river, they are enabled to fill orders at the lowest prices and on the most reasonable terms.

MACHINERY.—STEAM ENGINES, ENGINE Lathes, Iron Planers, Woodworth Planers. Saw Mills, and a variety of other machinery, for sale very low for cash, to close consignments, by A. L. ACKERMAN, 163 Greenwich st., New York.

LAP-WELDED IRON BOILER TUBES.—Prosser's Patent.—Every article necessary to drill the tube-plates and set the tubes in the best manner. THOS. PROSSER & SON, 28 Platt st., New York.

PATENT SMUT MACHINE—THE SUBscriber would call the attention of farmers and millers to his recently-patented Smut Machine, believing it to be the best machine out. For description of the machine see No. 4, Vol. 13, Scientific American. For rights or machines address J. R. GATES, Eckmansville, Ohio.

HARRISON'S 30 INCH GRAIN MILLS—Latest Patent.—A supply constantly on hand. Price $200. Address New Haven Manufacturing Co., New Haven, Conn.

BALL'S OHIO MOWER—WITH OR WITHout the Reaping Attachment. For territory or shop rights apply to SAXTON & ROFF, Canton, Ohio.

WROUGHT IRON PIPE—PLAIN AND GALVANIZED, sold at wholesale, by JAMES O. MORSE & CO., No. 79 John street, New York.

RECIPE FOR MAKING ARTIFICIAL HONEY, —As good in looks and taste as that made by bees, and which does not cost over six cents per pound—sent for $1. Address N. R. GARDNER, Peace Dale, R. I.

A MECHANICAL ENGINEER, OF MUCH experience in building and running machinery, especially cotton, wishes for a situation; one of much responsibility preferred. Address GEORGE COPELAND, North Gray, Me.

FOR "SAWYER'S COMPANION," APPLY to S. E. PARSONS, Wilkesbarre, Pa., or to MUNN & CO., New York City. Price $1 by mail.

1,000 AGENTS—FOR NEW, SURE, UNparalleled Inducements. Send stamp to M. J. COOK, Detroit, Mich.

SAWING AND PLANING IN COMBINATION—An invention by which sawing and planing is performed in one operation, may be seen working at the Crystal Palace. Patented March 1857, by G. F. WOOLSTON, of Washington, D. C. State rights for sale on moderate terms.

HARRISON'S GRIST MILLS—20, 30,36 AND 48 inches diameter, at $100, $200, $300 and $400, with all the modern improvements. Also, Portable and Stationary Steam Engines of all sizes, suitable for said Mills. Also, Bolters, Elevators, Belting, &c., &c. Apply to S. C. HILLS, 12 Platt st., New York.

FORBES & BOND, ARTISTS, 89 NASSAU street, New York, Mechanical and General Draughtsmen on wood stone, &c.

STEAM ENGINES, STEAM BOILERS, Steam Pumps, Saw and Grist Mills, Marble Mills, Rice Mills, Quartz Mills for gold quartz, Sugar Mills, Water Wheels, Shafting and Pulleys. The largest assortment of the above in the country, kept constantly on hand by WM. BURDON, 102 Front street, Brooklyn, N. Y.

WEST PHILADELPHIA CHEMICAL WARE Pottery.—Acid and fire-proof ware of all shapes and sizes, up to 200 gallons, made to order; warranted to resist acids of all kinds, and stand changes of temperature, from extreme heat to cold. MORO PHILLIPS, 27 North Front st.

SECOND-HAND MACHINISTS' TOOLS—Consisting of 20 Engine Lathes, 9 Iron Planers, 4 Upright Drills, Hand Lathes, Chuck Lathe, Gear Cutters and Vices, all in good order, and for sale low for cash. For particulars, address FRANKLIN SKINNER, 14 Whitney avenue, New Haven, Conn.

WOODWORTH'S PATENT PLANING MACHINES, of every kind and all prices. A large assortment on hand; and I am prepared to construct any machine to order, from ten days to two weeks, and guarantee each machine to be perfect in its construction, and give purchasers entire satisfaction. The patent has expired, and will not be renewed. I make this business exclusive, manufacturing nothing but the Woodworth Machines, and for that reason can make a better article for less money; and with my fifteen years' experience I fully guarantee each machine to come up to what I am willing to recommend, that is, that each machine shall be more than equal to any other manufactured for the same price. JOHN H. LESTER, 57 Pearl street, Brooklyn, N. Y., three blocks above Fulton Ferry.

ENGRAVING ON WOOD AND MECHANICAL DRAWING, by RICHARD TEN EYCK, Jr., 128 Fulton street, New York, Engraver to the Scientific American.

SAWS.—HOE & CO.'S PATENT GROUND SAWS, Plastering Trowels, &c., can be had, wholesale and retail, at the principal hardware stores, at the salesrooms of the manufacturers, 29 and 31 Gold street, or at the works corner of Broome, Sheriff and Columbia sts., New York. Illustrated catalogues, containing prices and information interesting to sawyers generally, will be sent by post on application.

BOILER FLUES—ALL SIZES, AND ANY length desired, promptly furnished by JAMES O. MORSE & CO., No. 79 John street, New York.

TO MANUFACTURERS.—ALLEN & OSMOND'S Improved Patent Shuttle Loom, for Weaving Checks, Plaids, Ginghams, Handkerchiefs, Shawls, &c.—The advantage of this Loom over all others heretofore in use, is, that on it may be woven, almost with the facility of plain print cloth, all kinds of cross-barf ancy goods, of any device or pattern, which can be woven by hand; the lift and drop motion being so constructed that it will skip from shuttle to shuttle, as may be required, and no shuttle can be made to operate but the right one; thereby preventing the possibility of mistake (by the weaver) in the pattern.

These looms may be seen in operation in the Franklin Factory, Wilmington, Del., where orders for them will be received and promptly attended to by A. P. OSMOND, Assignee.

NEW HAVEN MANUFACTURING CO.—Machinists' Tools, Iron Planers, Engine and Hand Lathes, Drills, Bolt Cutters, Gear Cutters, Chucks, &c., on hand and finishing. These tools are of superior quality, and are for sale low for cash or approved paper. For cuts giving full description and prices, address "New Haven Manufacturing Co., New Haven, Conn."

SCREW BOLTS WITH SQUARE, CARriage or Counter-sunk Heads, Bolt Ends, Square Head Wood Screws, Set Screws, Machine Screws, Ratchet and Breast Drills, Standard Steel and Shrinkage Rules, for sale, by CHAS. MERRILL & SONS, 556 Grand street, New York.

PEARSON CROSBY'S PATENT RE-SAWING MACHINES.—The Crosby patent for re-sawing lumber, having been re-issued April 28, 1857, and having purchased the right to the same for the State of New York and Northern Pennsylvania, the subscriber is prepared to sell rights to use the machines in the greater portion of the above named territory, and also to furnish the public with these machines. Having re-built my machine manufactory—which was destroyed by fire on the 9th of February last—I continue to manufacture and have on hand for sale, Woodworth's Patent Planing Machines, from $150 to $1,500, and of a quality unequaled by any other manufacturer. Also the separate parts of the machine, namely, planing knives, side tools, side cutter heads, cylinders, &c., as well as the above named Crosby Re-sawing Machines. JOHN GIBSON, Planing Mills, Albany, N. Y.

INCRUSTATION IN STEAM BOILERS—A late patent for removing and preventing incrustation in steam boilers. It has been thoroughly tested, and in every instance has given full satisfaction, by removing all old scale, and preventing the formation of new, keeping the boilers entirely free from incrustation, without injury to the iron. Satisfactory proof of its good effects will be given to any one wishing to purchase. For sale in individual or State rights. All persons will please enclose letter stamps to pay return postage, and prompt attention will be given to letters. Address JAMES M. CLARK, Lancaster, Pa., Sole Agent for the United States.

MACHINE BELTING, STEAM PACKING, ENGINE HOSE.—The superiority of these articles, manufactured of vulcanized rubber, is established. Every belt will be warranted superior to leather, at one-third less price. The Steam Packing is made in every variety, and warranted to stand 300 degs. of heat, The hose never needs oiling, and is warranted to stand any required pressure; together with all varieties of rubber adapted to mechanical purposes. Directions prices, &c., can be obtained by mail or otherwise, at our warehouse, NEW YORK BELTING AND PACKING COMPANY. JOHN H. CHEEVER, Treasurer, No. 6 Dey street, New York.

WELCH & GRIFFITHS—ESTABLISHED 1830—Manufacturers of Improved Patent Ground and Warranted Extra Fine Cast Steel Saws, of the various kinds now in use in the different sections of the United States and the Canadas, and consisting of the celebrated Circular Saw, Graduated Cross Cut and Tenon, Gang, Mill, Pit, Segment, Billet and Felloe Saws, &c., &c. For sale at their warehouse, No. 48 Congress street, Boston, Mass.

OIL! OIL! OIL!—FOR RAILROADS, STEAMERS, and for machinery and burning. Pease's Improved Machinery and Burning Oil will save fifty per cent., and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer. F. S. PEASE, 61 Main st., Buffalo, N. Y.

N. B.—Reliable orders filled for any part of the United States and Europe.

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Science and Art.

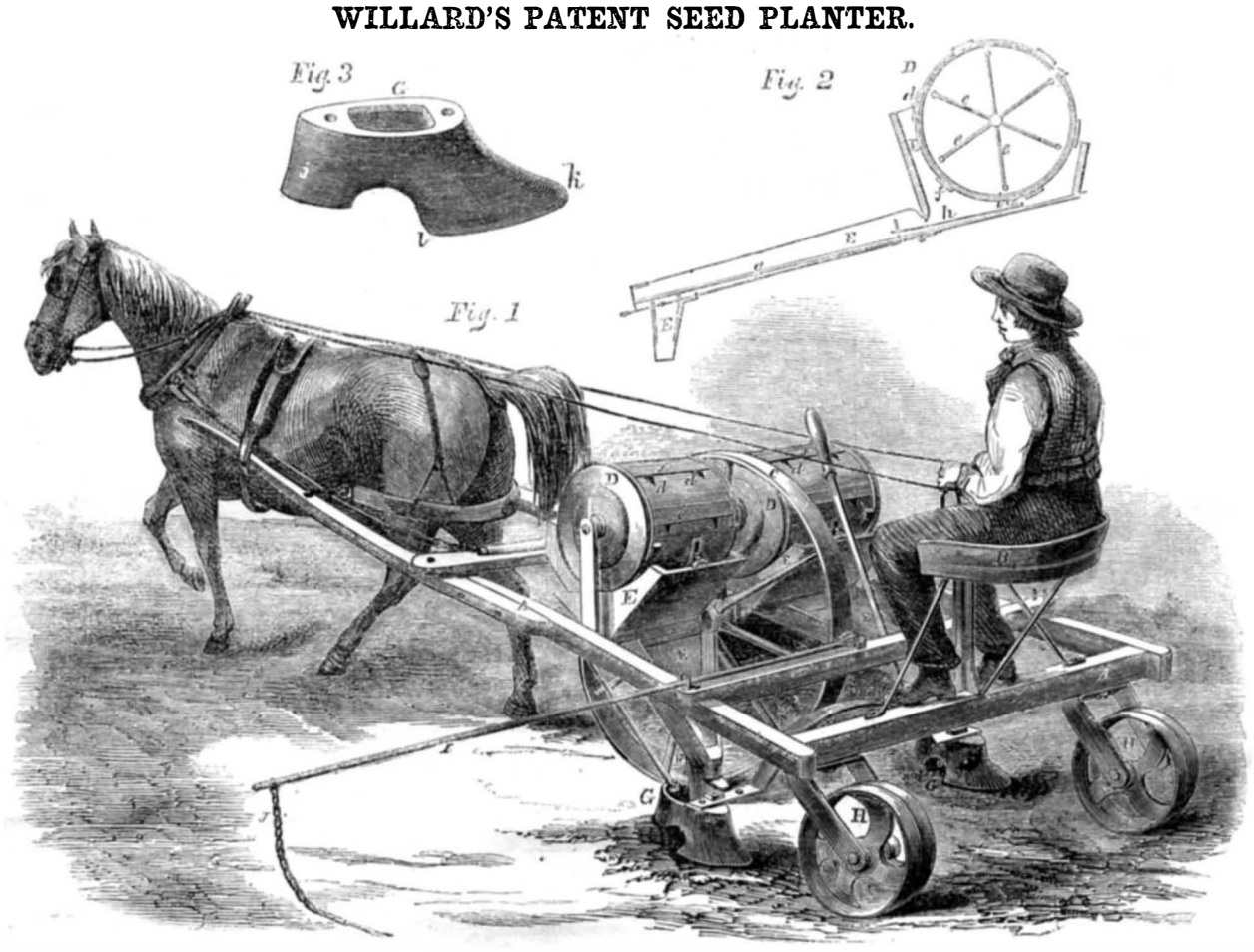
Artificial Whalebone.

It would almost seem that science, in its rapid march, would finally procure for the great whales of the deep a respite from the tormenting and deadly assaults of the harpoon. Artificially made oils and fluids are steadily displacing animal products for purposes of illumination, and now by a somewhat recent discovery the bone of the whale is no longer needed to supply our umbrella and skirt-makers with skeleton frames. In 1855, Joseph Kleemann, of Meissen, Germany, obtained a patent for a mode of preparing a substitute for whalebone. The process has been put into practice in this city by Vellman, Solomon & Co., who are turning out about twenty thousand umbrella frames every week! It consists in taking sticks of the common ratan and soaking them in a liquid extract for about four days, after which they are immersed in a solution of any of the iron salts, which gives the ratan a deep black dye. Subsequently the sticks are exposed in a close vessel, for the space of about one hour, to the action of steam of about three or four atmospheres' pressure, and then thoroughly dried in a furnace or drying room at a temperature of about 180° Fah., when they become ready for the impregnating process.

The sticks are then placed into an iron cylinder (capable of standing the pressure of at least ten atmospheres), connected by a pipe with an open vessel, containing a varnish made by dissolving 120 parts of shellac and 200 parts of burgundy pitch in 90 parts of absolute alcohol. The air having been exhausted from the cylinder, the cock connecting it with the vessel containing the varnish is opened, when the atmospheric pressure will force the varnish into the cylinder and into the pores of the ratan.

The impregnation of the ratan is rendered more perfect by the use of a pump for forcing the solution into the cylinder. The ratan has now changed its character and become hardly distinguishable from the best quality of whalebone, except that it is somewhat more elastic and less liable to splinter and break. It has gained one hundred per cent in weight by impregnation. After being removed from the cylinders, or impregnators, but little remains to be done in the way of drying, polishing, and fitting the ends, &c., to prepare it for use for umbrellas, parsols, canes, &c., and various other purposes.

WILLARD'S PATENT SEED PLANTER.



The advantage of this seed planter over the numbers that are in operation is shown and will be understood from the following description and engravings, of which Fig. 1 is a perspective view of the whole, Fig. 2 a section of the seed-planting device, and Fig. 3 an enlarged view of the furrower and presser.

A represents the main frame, on which the whole device is mounted; B the driver's seat; C the large front wheel that supports the frame, and gives motion to the seed boxes, either by a strap or gearing. D are the seed boxes, provided with slits, *d*, and divided into compartments, as seen at Fig. 2, *e*, which compartments tend to force the seed to the periphery of the box, and send it through the holes, *d*. There are also slides, *f*, on the outside of the periphery of the boxes, by whose means the size of the apertures is increased or diminished, thus allowing a greater or less quantity to pass through. The seed passes from that into a trough, E, which is also provided with a spout, F, through which the passage of the seed is again regulated, by means of a reciprocating arrangement also shown in Fig. 2, which consists in a rod, *g*, acted upon by a lever, *h*, which is depressed, and allowed to raise itself by the weight of *g*, and the projections on the seed boxes, *i*. By these means a double regulator is effected, and the certainty of an equal distribution insured. There is also to each seed box and trough a setter and coverer of novel construction, as they are both cast in one piece, G, and seen enlarged at Fig. 3, the fore part of which, *j*, acts a plow; and the shape of the hind part, *k*, is such, that by means of the outspreading flanges, *l*, it gathers up the soil and presses it over the seed, which is further aided by the rollers, H, that support the back part of the frame. A marker, J, is attached to the rod, I, so that the driver may be able to plant the seed in perfectly parallel lines. This is one of the most complete machines for the purpose intended, and one of them is on exhibition at the Crystal Palace during the Fair.

Letters Patent for this seed planter were granted this week, as will be seen on reference to our list of Patent Claims.

For further particulars and information apply to Hosea Willard, Vergennes, Vt.

Description of the Gulf Stream.

The general description of the Gulf Stream is that of a vast and rapid ocean current, issuing from the basin of the Mexican Gulf and Caribbean Sea, doubling the southern cape of Florida, pressing forward to the northeast, in a line almost parallel to the American coast; touching on the southern borders of the Banks of Newfoundland, and at some seasons partially passing over them; thence, with increasing width and diffuusion, traversing the whole breadth of the Atlantic, with a central direction towards the British Isles; and finally losing itself by still wider diffusion in the Bay of Biscay, on our own shores, and on the long line of the Norwegian coast. Its identity in physical characters is preserved throughout the many thousand miles of its continuous flow; the only change undergone is that of degree. As its waters gradually commingle with those of the surrounding sea, their deep blue tint declines, their high temperature diminishes, and the speed with which they press forward abates. But, taking the stream in its total course, it well warrants the name of a "river in the ocean." This epithet is, in truth, singularly appropriate to this vast current, so constant and continuous in its course, and so strangely detached from the great mass of ocean waters, which, while seemingly cleft asunder to give path to its first impulse, are yet ever pressing upon it, gradually impairing its force and destroying its individuality.

The maximum of velocity where the stream quits the narrow channel of Bemini—which compresses its egress from the Gulf—is about four miles an hour; off Cape Hatteras, in North Carolina, where it has gained a breadth of seventy-five miles, its velocity is reduced to three miles. On the parallel of the Newfoundland Banks, it is further reduced to one and a half miles an hour, and this gradual abatement of force is continued across the Atlantic. The temperature of the current undergoes a similar change. The highest observed is about 85° Fah. Between Cape Hatteras and Newfoundland, though lessened in amount, the warmth of the stream in winter is still 25° or 30° above that of the ocean through which it flows.—*Edinburgh Review.*

The Tamarind

Is the fruit of a tree (*Tamarindus Indicus*) growing in the East and West Indies to the height of 30 or 40 feet. When the fruit is ripe the shell or epicarp is removed, and the fruit placed in layers in a cask, boiling water being then poured over it. Another plan is to put alternate layers of tamarinds and powdered sugar in a stone jar. Tamarinds are imported both raw and preserved. Tamarind pods are from 3 to 6 inches long, and more or less curved: they consist of a dry, brittle, brown external shell, within which is the acidulous, sweet, reddish-brown pulp (which is the useful part) penetrated by strong fibres. Within this is a thin membraneous coat enclosing the oval brown seeds. The pulp allays thirst, is nutritive and refrigerant, and in full doses is a laxative. "An infusion of tamarinds," says Pereira, "forms a very pleasant cooling drink, as does also tamarind whey." Infusion of senna with tamarinds is a useful laxative.

Ship Canal.—The Legislature of New York has incorporated a company to build a ship canal round Niagara Falls, capable of receiving ships of war, and vessels of the largest size. Congress is to be solicited to aid this great national work. Wheat can thus be sent direct from the lakes to Liverpool.

NEW Prospectus

OF THE

SCIENTIFIC AMERICAN.

VOLUME THIRTEEN.

TO MECHANICS, MANUFACTURERS, INVENTORS AND FARMERS.

In announcing the THIRTEENTH Annual Volume of the SCIENTIFIC AMERICAN, which commenced on the 12th of September, the Editors and Publishers embrace this opportunity to thank their numerous friends and subscribers for the encouraging and very liberal support heretofore extended to their journal, and they would again re-assure its patrons of their determination to render the Scientific American more and more useful, and more and more worthy of their continued confidence and good will. The undersigned point to the past as a guarantee of their disposition to always deal justly and discriminatingly with a subjects of a Scientific and Mechanical character whic come within their purview.

Having entirely discarded the system of employ itinerant agents to obtain subscribers, the Publishers of the Scientific American propose to offer

ONE THOUSAND FIVE HUNDRED DOLLARS IN CASH PREMIUMS

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